Technical Note N-830

AIRFIELD PAVEMENT EVALUATION - USNAF CHINA LAKE, CALIFORNIA

by

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U. S. NAVAL CIVIL ENGINEERING LABORATORY
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ERRATA

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1. On pages 13, 14, 15, and 16, change the footnote to read: "At 95 percent of maximum Modified AASHO Density."

2. On page 267, change caption at upper right of curve to read: "3-3/4" below top of asphaltic concrete".

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ABSTRACT

The evaluation of pavement at the U. S. Naval Air Facility, China Lake, California, is presented with the allowable gross load capacities of the runways, taxiways, and parking aprons for single, dual, single-tandem, and dual-tandem wheel assembly aircraft. Information is also included on the construction history, climatic data, and current aircraft traffic. Results of the field and laboratory tests on the pavements and subsurface materials are included in the tables. Results of the evaluation show that the runways, taxiways, and aprons are capable of withstanding the loads imposed by current aircraft with the exception of the south end of Taxiway 14-32 and the old portland cement concrete in Parking Aprons 1, 2, and 3.

INTRODUCTION

The purpose of the airfield pavement evaluation task is to determine the suitability of the pavements at Naval and Marine Corps air stations, under the cognizance of the Naval Facilities Engineering Command, to accommodate the aircraft currently using the station and to provide designers with information on physical properties of the pavement and pavement materials. During the period from 6 October 1965 to 11 January 1966, field tests were conducted at the U. S. Naval Air Facility, China Lake, California, to thoroughly evaluate the pavements used by aircraft at that station. Authority for this evaluation was granted U. S. Naval Civil Engineering Laboratory by the Bureau of Yards and Docks (now Naval Facilities Engineering Command) in April 1963. The evaluation made use of surface plate loading tests on the asphaltic concrete pavements, sampling of both the asphaltic concrete and portland cement concrete pavements, removal of portions of the pavements, in-place testing of the base, subbase, and subgrade materials, and plate loading tests on the base and subgrade.

BACKGROUND

The U. S. Naval Air Facility, China Lake, California, is an auxiliary facility of the U. S. Naval Ordnance Test Station, China Lake, California. The airfield is approximately 3 miles north of the main gate of NOTS China Lake and is located along the shore of a dry lake bed in the Mojave Desert. The geographical location for NAF China Lake is latitutde 35°41' North, longitude 117°41' West at an elevation of 2,215 feet. The airfield is delta in shape formed by Runway 3-21 on the northwest, Runway 7-25 on the south, and Runway 14-32 on the east with taxiways heading therefrom to the parking aprons and hangar areas. Runway 3-21 is 10,000 feet long, Runway 7-25 is 7,500 feet long, and Runway 13-31 is 8,500 feet long. An aerial photograph of the air facility is shown in Figure 1.

CONSTRUCTION HISTORY

Construction of the air facility began in 1944 when the three runways, the taxiway parallel to Runway 14-32, and the parking apron were constructed. Extensions to all runways and the taxiway were completed in 1945. Runway 3-21 was extended again in 1952. A complete history of construction for the air facility is presented in Appendix A.

CURRENT AIRCRAFT TRAFFIC

A tabulation of the number of operations for a 12-month period is shown in Table 1. During the period of evaluation, the following aircraft were observed operating at the facility: A1, A4, F4B, and F8 fighters, F9 drone, A-3, P-2, S2, TF-10, and WC-121N patrol, C-54, C-117, C-118, and C-131 transports, and T-28 and C-45 trainers.

CLIMATIC DATA

Average monthly temperature and precipitation data for the past 10 years at NAF China Lake are presented in Appendix B. The maximum and minimum temperatures for the past 10 years are also shown in Appendix B.

CONDITION OF EXISTING PAVEMENTS

A visual inspection of the airfield pavements during the period of evaluation showed that the general condition of the asphaltic concrete pavements was poor. Considerable longitudinal and transverse cracking was apparent in the majority of the asphaltic concrete surfaces. Even where pavement conditions were extremely poor, however, no completely failed areas were noted. Runway 3-21 was scheduled to be overlaid with asphaltic concrete during February of 1966. The portland cement concrete pavements were found to be generally in good to excellent condition. A detailed visual condition survey of the pavements is presented in Appendix C. Photographs showing typical pavement conditions noted during the evaluation can be seen in Figures 2 through 30.

Soil and Pavement Profiles

A search was made of the Southwestern Division NAVFAC files and the Public Works office files of NAF China Lake to obtain soil borings and pavement profiles of all the airfield pavements at NAF China Lake. If profiles were not available, core borings were made at a minimum of 1,000-foot centers along the centerline of the pavement to a depth of 6 feet. Profiles for all pavements at NAF China Lake are shown in Figures 31 through 36.

FIELD INVESTIGATIONS

Field investigation consisted of: Testing with surface plate loads on the asphaltic concrete pavements; coring and sampling the portland cement concrete pavements for subsequent laboratory testing; determining in-place density (sand-funnel) and moisture contents of the base, subbase, and subgrade; sampling the base, subbase, and subgrade materials for laboratory testing; plate load testing of the base and subgrade; and

augering to a depth of 5 feet to visually classify the subgrade materials to this depth. In general, field tests were spaced on 1,000-foot centers on the runway and taxiway and one test per 20,000 square yards on the aprons. Test locations are shown in Figure 37.

At each location on the asphaltic concrete pavements, one 8- and one 30-inch-diameter plate loading test was performed on the surface. During the plate loading test, load was applied in increments to each plate until a total deflection of 0.15 inch was obtained or the capacity of the load cart (100,000 pounds) was reached. On those asphaltic concrete pavements underlain with a soil cement base, deflection was limited to 0.10 inch or the capacity of the load cart. In accordance with ASTM D-1195-57 procedure, each loading increment was maintained until the deflection did not exceed 0.001 inch per minute for 3 successive minutes before the next load was applied. In addition to the surface plate loading tests, a 4- by 4-foot test pit was dug to permit tests on the underlying material on those asphaltic concrete pavements where the load-carrying capacity did not equal the values listed in NAVDOCKS P-18. Upon removal of the asphaltic concrete pavement, in-place density and moisture tests were run on the base, and a 200-pound sample of the base material was obtained for laboratory testing. When soil cement base was encountered, 6-inch-diameter cores were cut and flexural test beams were cut with a pavement saw. The test pit was then dug to approximately 10 inches below the pavement surface or to the bottom of the stabilized base. At this level a 30-inch-diameter plate load test was performed. In-place density and moisture tests were run, and a 200-pound sample was obtained at this elevation also. The test pit was then dug to the top of the subgrade. On the surface of the subgrade, a 30-inch-diameter plate load test was performed. In-place density and moisture tests were run, and a 200-pound sample was obtained of the subgrade material. An auger hole was then drilled to a depth of 6 feet below the pavement surface to visually classify the subgrade materials.

At each test location on the portland cement concrete runways, taxiways, and parking aprons, three 6-inch-diameter cores were obtained. In one of these holes, the base and subgrade materials were sampled for classification purposes and to determine the thickness of the various layers. In addition, at one selected test location representative of consistent (similar) pavement sections and subgrade conditions (see Appendix A for identification of areas), three flexural test beams were cut for subsequent laboratory testing. The cut section was then enlarged to a 4-foot square to permit plate loading on the base course to determine the "K" value. At each cut section location, subsurface testing was performed in the same manner as under the asphaltic concrete pavements.

LABORATORY TESTING

In the laboratory, the following determinations were made of the properties of the materials obtained in the field:

Portland Cement Concrete

thickness	
examine for deficiencies	
tensile splitting test	ASTM C496-64T
flexural strength of hardened concrete (modulus of rupture)	ASTM C42-61

Subsurface Materials

gradation of aggregates	ASTM C136-61T
specific gravity of aggregates	ASTM D854-58
plastic limit and plasticity index of soils	ASTM D424-59
liquid limit of soils	ASTM D423-61
moisture-density relation of soils	ASTM D1557-61T
California bearing ratio	EM 1110-45-302 (CE)
compressive strength of soil cement cylinders	ASTM D1633-59T

All of the above tests are specified in NAVDOCKS DM-21 and were performed in accordance with procedures listed above.

TEST RESULTS

Asphaltic Concrete Pavements

Results of plate loading tests conducted on the surface of the asphaltic concrete pavements are presented in Appendix D. The loads causing 0.15-inch deflection in the 8- and 30-inch-diameter plate tests on those pavements not underlain with a soil cement base and 0.10-inch deflection on those with a soil cement base were used for computing the allowable gross aircraft loads for the asphaltic concrete pavements. The curves presented in Appendix D are thus indicated as a surface test on a crusher run base or soil cement base whichever pertains. These computations were in accordance with Figure 13-1 of NAVDOCKS DM-21. The graphic method for determining the allowable single wheel load for tire pressures of 150 and 400 psi is presented in Appendix E for each of the asphaltic concrete pavements. In addition, on the curves presented for Runway 3-21 in Appendix E, the results of plate tests conducted in 1963 are included. A summary of the 1965 pavement load ratings as obtained from the curves in Appendix E is shown in Table 2. Results of the

laboratory tests performed on the asphaltic concrete cores and the recovered asphaltic concrete pavement sections are shown in Table 3. Gradations of the recovered aggregates are presented in Appendix F.

Portland Cement Concrete Pavements

Tensile splitting tests were performed on the portland cement concrete cores obtained from the pavements. Beams were tested in the laboratory to determine the modulus of rupture of the in-place concrete. The results of the tensile splitting tests and the flexural strength obtained from the field-cut beams are presented in Table 4. Using these data and the modulus of subgrade reaction "K" as obtained from the evaluation, or from adjacent area, the allowable load ratings for the portland cement concrete pavements were computed in accordance with Example 13-1 of NAVDOCKS DM-21. The load ratings are shown in Table 5.

Subsurface Materials

Gradation of the base and subgrade materials from the test pits and auger holes are presented in Appendix F. Results of 30-inch-diameter plate loading tests performed on the base and subgrade and the calculated modulus of subgrade reaction "K" are presented in Appendix G. "K", the modulus of subgrade reaction, is also tabulated in Tables 5 and 6. Results of the laboratory tests performed on the unstabilized base and subgrade materials are shown in Table 6. Results of compression tests performed on 6-inch-diameter cores of the soil cement base are shown in Table 7.

Typical curves for moisture-density relationship and California bearing ratio for samples of the base, subbase, and subgrade are presented in Appendix H. Logs of each of the test pits and the auger hole logs are presented in Appendix I.

CONCLUSIONS

A review of the calculated allowable gross aircraft loads as shown in Tables 2 and 5 indicates that from a load-carrying capacity, the runways and taxiways with the exception of the south end of Taxiway 14-32 between station 5+25 and station 13+50 are capable of withstanding the loads imposed by current aircraft. Visual inspection of the asphaltic concrete pavements, however, showed that the surfaces were all cracked very badly and the surfaces in general were in poor condition. The load-carrying capacity of the portland cement concrete in all of the parking aprons was low except the newer sections of Parking Apron 1 constructed in 1957.

A review of the laboratory tests conducted on the recovered materials from the asphaltic concrete pavements shows that, with only a few exceptions, the asphalt has become hard (aged) as would be expected. The penetration of the asphalt recovered was between 5 and 22 with one

test showing 47. Ductility of the asphalt ranged between 0 and 15 centimeters with one test showing 150+ centimeters at 77°F. In-place moisture content on the subgrade materials ranged from 1.7 to 13.6 percent, and optimum moistures ranged from 6.6 to 9.6 percent. All but one sample of the subsurface materials were found to be non-plastic and had California bearing ratios ranging from 38 to 63. Compressive strengths of the soil cement base ranged from 646 to 3,286 psi.

REFERENCES

1. District Public Works Office, Eleventh Naval District. "Report on evaluation of Runway 21-3, Naval Air Facility, Inyokern, California." San Diego, California, 18 June 1952.

2. Daniel, Mann, Johnson & Mendenhall, Architects and Engineers. Contract NOy-76012: "Report on testing, design and materials, extension of Runway 21-3, Armitage Field." Los Angeles, California, October 1952.

3. Casaroli, E. "Report of soils investigation, extension of Runway 3-21 NAF, U. S. Naval Ordnance Test Station, China Lake, California (FY 1959 MCON Program). 22 May 1957.

4. Southwest Division, Bureau of Yards and Docks. "Evaluation of Runway 3-21, Naval Ordnance Test Station, China Lake, California," by D280, DPWO-12ND. January 1963.

Table 1. Traffic Data for USNAF China Lake, California

Date	Landings	Takeoffs	Touch and Go
July 1964	1,687	1,687	544
August 1964	1,261	1,262	746
September 1964	1,288	1,287	530
October 1964	1,295	1,294	816
November 1964	954	955	628
December 1964	1,052	1,052	336
January 1965	2,525	2,525	2,488
February 1965	1,128	1,128	566
March 1965	1,262	1,262	666
April 1965	1,178	1,179	334
May 1965	1,200	1,200	338
June 1965	2,227	2,227	2,295
Average monthly operations (based on above 1-year period)	1,422	1,422	857

Table 2. Load Rating for Asphaltic Concrete Pavements, USNAF China Lake, California

Location	Allowable Gross Aircraft Loads (lb)[1]				
	Single Wheel Gear		Dual Wheel Gear	Single Tandem Gear	Dual Tandem Gear
	150 psi Tires	400 psi Tires	150 psi Tires	150 psi Tires	150 psi Tires
Runway 3-21					
Crusher Run Base	103,000	65,000	134,000	171,000	201,000
Soil Cement Base	206,000	154,000	268,000	342,000	402,000
Runway 14-32[2]	185,000	122,000	241,000	307,000	361,000
Runway 7-25[2]	177,000	149,000	230,000	294,000	345,000
Taxiway 14-32					
South End[3]	38,000	29,000	49,000	63,000	74,000
Soil Cement Base	162,000	142,000	210,000	269,000	316,000
North End[3]	164,000	91,000	213,000	272,000	320,000
Taxiway 3[3]	171,000	137,000	222,000	284,000	333,000
Taxiways 7 and 25[3]	112,000	69,000	146,000	186,000	218,000
Taxiway 21[3]	164,000	99,000	213,000	272,000	320,000
Connecting Taxiway A[2]	133,000	116,000	173,000	221,000	259,000
Connecting Taxiway B[2]	198,000	154,000	257,000	329,000	386,000
Connecting Taxiway C[2]	173,000	124,000	225,000	287,000	337,000
Connecting Taxiway D[2]	164,000	139,000	213,000	272,000	320,000

1 Assuming 95 percent of load on Main Gear, 5 percent on Nose Gear.
2 Soil Cement Base
3 Crusher Run Base

Table 3. Laboratory Test Results of Asphaltic Concrete Pavement Specimens, USNAF China Lake, California

Location	Average Thickness of A.C. (in.)	Average Bulk Specific Gravity	Percent Asphalt by Weight	Specific Gravity of Aggregate		Penetration at 77°F	Ductility (cm)		Percent Voids		Hveem Stability at 140°F
				-#4	+#4		77°F	45°F	Total Mix	Filled With Asphalt	
Runway 07-25											
26+00 Wearing	3.0	2.17	4.8	2.60	2.64	5	0	0	11.1	48.0	24
Binder	0.7	2.10	---	---	---	---	---	---	---	---	---
46+00	3.3	2.24	4.8	2.60	2.64	6	0	0	8.2	56.3	30
66+00 Wearing	3.3	2.25	4.9	2.60	2.64	8	2	0	7.8	58.0	40
Binder	1.0	2.18	---	---	---	---	---	---	---	---	---
Runway 14-32											
24+00 Wearing	3.2	2.20	4.6	2.60	2.64	6	0	0	9.8	50.2	22
Binder	0.9	2.20	---	---	---	---	---	---	---	---	---
44+00	3.2	2.18	5.3	2.60	2.64	9	1	0	9.5	54.3	33
62+00	3.5	2.16	4.7	2.60	2.64	8	1	0	11.5	46.4	21
Taxiway 14-32											
10+00	3.7	2.31	4.7	2.63	2.68	13	6	0	6.5	62.1	39
40+00	3.3	2.26	4.8	2.60	2.64	9	4	0	7.4	59.5	35
60+00	3.3	2.20	5.2	2.60	2.64	7	2	0	9.1	55.7	35
86+00	3.2	2.28	5.0	2.63	2.68	10	2	0	7.3	60.5	23
Taxiway 3											
24+00	2.7	2.29	5.8	2.60	2.65	47	150+	7	4.6	74.3	22
Taxiway 7											
10+00	3.5	2.26	4.1	2.63	2.68	15	7	0	9.2	50.2	25

(Cont'd)

Table 3. Laboratory Test Results of Asphaltic Concrete Pavement Specimens, USNAF China Lake, California (Cont'd)

Location	Average Thickness of A.C. (in.)	Average Bulk Specific Gravity	Percent Asphalt by Weight	Specific Gravity of Aggregate		Penetration at 77°F	Ductility (cm)		Percent Voids		Hveem Stability at 140°F
				-#4	+#4		77°F	45°F	Total Mix	Filled With Asphalt	
Taxiway 21											
7+00	3.4	2.29	4.3	2.63	2.68	17	8	0	7.7	56.4	30
18+00	3.0	2.24	5.8	2.60	2.64	8	2	0	6.7	66.0	36
Taxiway 25											
10+00	3.3	2.27	4.7	2.63	2.68	22	15	0	8.1	57.1	30
Connecting Taxiway A											
2+00	2.4	2.22	4.9	2.60	2.64	8	3	0	8.6	55.9	30
Connecting Taxiway B											
2+00	3.4	2.27	5.8	2.60	2.64	9	5	0	5.4	70.9	30
Connecting Taxiway C											
2+00	2.8	2.22	4.2	2.60	2.64	11	5	0	9.8	48.7	25
Connecting Taxiway D											
4+00	2.8	2.31	5.9	2.60	2.64	19	8	0	3.8	78.2	25

Table 4. Results of Tests on Portland Cement Concrete Pavement Specimens, USNAF China Lake, California

Location	Pavement Thickness (in.) (1)	Flexural Strength From Beams (psi) (2)	Tensile Strength (3)	Ratio of Flexural Strength to Tensile Strength (4)	Flexural Strength Based on Ratio in Col (4) (5)	Concrete Working Strength (psi) (5)/1.4 (6)
Runway 07-25						
6+00	11.0	---	649	1.28	830	592
72+00	11.5	750	585	1.28	750	535
Runway 14-32						
3+00	11.0	---	616	1.28	787	562
85+00	11.2	---	655	1.28	828	591
Taxiway 3						
2+00	10.5	---	631	1.28	807	576
Taxiway 21						
2+00	10.5	---	768	1.28	981	700
Connecting Taxiway E						
1+50	10.2	---	662	1.28	847	605
Parking Apron 1						
A	9.0	552	438	1.26	552	394
B	8.7	---	647	1.26	816	582
New C	9.9	757	603	1.25	757	540
New D	10.0	---	590	1.25	737	526
E	9.4	---	396	1.26	498	356
New F	9.6	---	558	1.25	696	497
Parking Apron 2						
A	9.5	---	311	1.26	392	280
Parking Apron 3						
A	6.8	---	452	1.26	570	407

Table 5. Load Ratings for Portland Cement Concrete Pavements, USNAF China Lake, California

Location	Pavement Thickness (in.)	Concrete Working Stress (psi)	K Value (pci)	Single Wheel Gear Loads (kips) Corrected for K & Working Stress		Allowable Gross Aircraft Loads (kips) for Aircraft With			
						Single Wheel Gear		Dual Wheel Gear	Dual Tandem Gear
				150 psi Tires	400 psi Tires	150 psi Tires	400 psi Tires	150 psi Tires	150 psi Tires
Runways 07-25, 03-21, 14-32 (Ends)	11.0	535	300	63	54	134	114	205	365
Parking Apron 1									
9" PCC (1944)	9.0	356	352	25	19	54	40	90	212
10" PCC (1957)	10.0	497	404	50	40	105	84	193	370
Parking Apron 2	9.5	280	352	21	16	44	34	77	195
Parking Apron 3	6.8	407	352	16	13	34	27	63	170

Table 6. Results of Tests on Subsurface Materials,
USNAF China Lake, California

Location and Type of Sample	Depth Below Surface (in.)	Maximum Dry Density (lb/ft^3)	Optimum Moisture Content	In-Place Density		In-Place Moisture Content	Lab* CBR	Plasticity Index	Specific Gravity	Unified Soils Class.	Subgrade Modulus K in pci
				lb/ft^3	% of Max. Dry Density						
Runway 07-25											
6+00 (Auger)	11-72	---	---	---	---	8.4	---	NP	---	SM	---
16+00 (Auger)	13-68	---	---	---	---	3.2	---	NP	---	SP-SM	---
	68-72	---	---	---	---	13.6	---	NP	---	SM	---
26+00 (Pit)	12-39	127.9	7.0	126.0	98.5	9.8	50	NP	---	SM	516
	39-72	---	---	---	---	7.3	---	NP	---	SM	---
36+00 (Auger)	13-73	---	---	---	---	4.9	---	NP	---	SM	---
46+00 (Pit)	12-22	132.3	7.9	120.6	91.0	12.0	38	NP	---	SM	420
	22-40	129.4	6.9	117.6	91.5	7.3	50	---	---	SM	420
	40-72	---	---	---	---	7.3	---	NP	---	SM	---
56+00 (Auger)	12-36	---	---	---	---	8.6	---	NP	---	SM	---
	36-72	---	---	---	---	3.4	---	NP	---	SW-SM	---
66+00 (Pit)	13-40	129.8	7.0	126.5	96.7	7.5	50	NP	---	SM	344
	40-72	---	---	---	---	4.2		NP	2.57	SW-SM	---
72+00 (Pit)	11.5-44	132.0	8.7	126.9	96.0	10.3	38	NP	---	SM	300
	44-72	---	---	---	---	2.4	---	NP	2.62	SP-SM	---
Runway 14-32											
3+00 (Auger)	11-28	---	---	---	---	5.5	---	NP	2.59	SW-SM	---
	28-72	---	---	---	---	4.2	---	NP	---	SW-SM	---
14+00 (Auger)	10.5-72	---	---	---	---	12.6	---	NP	2.56	SM	---
24+00 (Pit)	14.5-72	132.8	8.4	129.1	97.4	9.0	38	NP	---	SM	264
34+00 (Auger)	14-72	---	---	---	---	6.6	---	NP	---	SM	---
44+00 (Pit)	12-22	132.7	7.2	126.2	95.2	8.7	50	NP	---	SM	566
	22-48	132.7	7.2	126.0	95.0	7.0	50	---	---	---	368
	48-72	---	---	---	---	5.3	---	NP	2.60	SM	---

* At 100 percent of maximum Modified AASHO Density.

(Cont'd)

Table 6. Results of Tests on Subsurface Materials, USNAF China Lake, California (Cont'd)

Location and Type of Sample	Depth Below Surface (in.)	Maximum Dry Density (lb/ft^3)	Optimum Moisture Content	In-Place Density		In-Place Moisture Content	LAF* CBR	Plasticity Index	Specific Gravity	Unified Soils Class.	Subgrade Modulus K in psi
				lb/ft^3	% of Max. Dry Density						
Runway 14-32 (cont'd)											
54+00 (Auger)	11.5-72	---	---	---	---	5.3	---	NP	---	SW-SM	---
62+00 (Pit)	13-72	128.7	9.6	117.9	91.5	10.3	50	NP	2.59	SM	530
74+00 (Auger)	12-72	---	---	---	---	6.6	---	NP	---	SM	---
85+00 (Auger)	12-72	---	---	---	---	5.3	---	NP	---	SM	---
Taxiway 14-32											
10+00 (Pit)	3.5-13	135.8	5.8	131.2	96.5	6.5	63	NP	---	SW-SM	---
	13-72	132.0	8.7	117.1	89.5	13.3	38	1	---	SM	116
20+00 (Auger)	13-72	---	---	---	---	5.6	---	NP	2.59	SM	---
30+00 (Auger)	14-43	---	---	---	---	5.6	---	NP	---	SM	---
	43-72	---	---	---	---	3.8	---	NP	2.59	SP	---
40+00 (Pit)	14-54	125.9	6.6	118.0	93.6	6.7	50	NP	---	SM	236
	54-72	---	---	---	---	4.1	---	NP	---	SW-SM	---
50+00 (Auger)	14.5-72	---	---	---	---	4.0	---	NP	---	SP	---
60+00 (Pit)	12-72	125.9	6.6	121.3	96.3	11.0	50	NP	---	SM	298
73+00 (Auger)	12.5-72	---	---	---	---	7.6	---	NP	---	SM	---
83+00 (Auger)	12.5-33	---	---	---	---	8.0	---	NP	---	SM	---
	33-72	---	---	---	---	11.4	---	11	---	SC	---
86+00 (Auger)	3.5-15	---	---	---	---	4.5	---	NP	---	GW	---
	15-58	---	---	---	---	5.2	---	NP	---	SM	---
	58-72	---	---	---	---	5.6	---	NP	2.60	SM	---
Taxiway 3											
2+00 (Pit)	10.5-72	129.8	7.0	127.0	97.9	8.5	50	NP	---	SW-SM	554
14+00 (Auger)	3-72	---	---	---	---	1.7	---	NP	---	SM	---

* At ~~105~~ 95 percent of maximum Modified AASHO Density.

(Cont'd)

Table 6. Results of Tests on Subsurface Materials, USNAF China Lake, California (Cont'd)

Location and Type of Sample	Depth Below Surface (in.)	Maximum Dry Density (lb/ft^3)	Optimum Moisture Content	In-Place Density		In-Place Moisture Content	LAB CBR	Plasticity Index	Specific Gravity	Unified Soils Class.	Subgrade Modulus K in psi
				lb/ft^3	% of Max. Dry Density						
Taxiway 3 (Cont'd)											
24+00 (Pit)	3-9	132.3	7.9	125.0	94.5	5.1	50	NP	---	SM	---
	9-33	132.3	7.9	129.8	98.0	5.1	50	NP	---	SM	660
	33-72	---	---	---	---	2.3	---	NP	---	SW-SM	---
36+00 (Auger)	3-25	---	---	---	---	7.6	---	NP	---	GW-SM	---
	25-72	---	---	---	---	3.5	---	NP	---	SW-SM	---
Taxiway 7											
10+00 (Auger)	3-72	---	---	---	---	5.1	---	NP	---	SM	---
Taxiway 21											
2+00 (Auger)	11-72	---	---	---	---	---	---	NP	---	SM	---
7+00 (Auger)	3.5-72	---	---	---	---	4.5	---	NP	---	SW-SM	---
18+00 (Auger)	11.5-72	---	---	---	---	8.5	---	NP	---	SM	---
Taxiway 25											
10+00 (Auger)	3.5-25	---	---	---	---	8.6	---	NP	---	GW-GM	---
	25-72	---	---	---	---	4.3	---	NP	---	SM	---
Connecting Taxiway A											
2+00 (Auger)	12.5-54	---	---	---	---	10.5	---	NP	---	SM	---
	54-72	---	---	---	---	11.9	---	9	---	SC	---
Connecting Taxiway B											
2+00 (Auger)	13-20.5	---	---	---	---	6.8	---	NP	---	SM	---

* At 95 percent of maximum Modified AASHO Density.

(Cont'd)

Table 6. Results of Tests on Subsurface Materials, USNAF China Lake, California (Cont'd)

Location and Type of Sample	Depth Below Surface (in.)	Maximum Dry Density (lb/ft³)	Optimum Moisture Content	In-Place Density		In-Place Moisture Content	LAB* CBR	Plasticity Index	Specific Gravity	Unified Soils Class.	Subgrade Modulus K in psi
				lb/ft³	% of Max. Dry Density						
Connecting Taxiway C											
2+00 (Auger)	12-72	---	---	---	---	9.1	---	NP	---	SM	---
Connecting Taxiway D											
4+00 (Auger)	12-60	---	---	---	---	5.9	---	NP	---	SM	---
	60-72	---	---	---	---	4.9	---	NP	---	SM	---
Connecting Taxiway E											
1+50 (Auger)	10-72	---	---	---	---	11.1	---	NP	2.63	SM	---
Parking Apron 1											
A (Pit)	9.5-72	130.8	7.8	123.2	94.4	6.1	38	NP	2.60	SM	352
B (Auger)	9-72	---	---	---	---	4.9	---	NP	---	SP-SM	---
C (Pit)	10-72	130.8	7.8	127.0	97.2	8.4	38	NP	---	SM	404
D (Auger)	10-24	---	---	---	---	6.9	---	NP	---	SM	---
	24-72	---	---	---	---	4.6	---	NP	---	SP	---
E (Auger)	9.5-72	---	---	---	---	3.5	---	NP	---	SP-SM	---
F (Auger)	10-72	---	---	---	---	3.2	---	NP	2.57	SP-SM	---
Parking Apron 2											
A (Auger)	9-72	---	---	---	---	4.4	---	NP	---	SM	---
Parking Apron 3											
A (Auger)	7-48	---	---	---	---	12.6	---	NP	---	SM	---
	48-72	---	---	---	---	6.3	---	NP	---	SM	---

* At ~~100~~ 95 percent of maximum Modified AASHO Density.

Table 7. Results of Tests on Cement Stabilized Base Cores, USNAF China Lake, California

Location	Height (1)	Diameter (2)	Cross-Sectional Area (3)	Load at Rupture (4)	Compressive Strength (4) ÷ (3) (5)
Runway 7-25					
16+00	9.6	5.9	27.3	57,400	2,102
36+00	9.0	5.9	27.3	28,000	1,026
56+00	7.4	5.9	27.3	49,000	1,795
66+00	7.8	5.9	27.3	69,000	2,527
Runway 14-32					
24+00	10.7	5.9	27.3	31,700	1,161
44+00	7.6	5.9	CORE BROKE LATERALLY REMOVING FROM CAPPER		
Taxiway 14-32					
30+00	9.0	5.9	27.3	65,000	2,381
34+00	9.8	5.9	27.3	18,000	659
40+00	9.2	5.9	27.3	70,000	2,564
50+00	9.5	5.9	27.3	55,300	2,026
60+00	7.3	5.9	27.3	65,000	2,381
73+00	7.2	5.9	27.3	87,200	3,194
83+00	8.1	5.9	27.3	38,400	1,406
Taxiway 21					
18+00	8.0	5.9	27.3	92,500	3,388
Connecting Taxiway B					
2+00	9.1	5.9	27.3	66,500	2,436
Connecting Taxiway C					
2+00	8.5	5.9	27.3	71,800	2,630
Connecting Taxiway D					
4+00	8.4	5.9	27.3	61,000	2,234

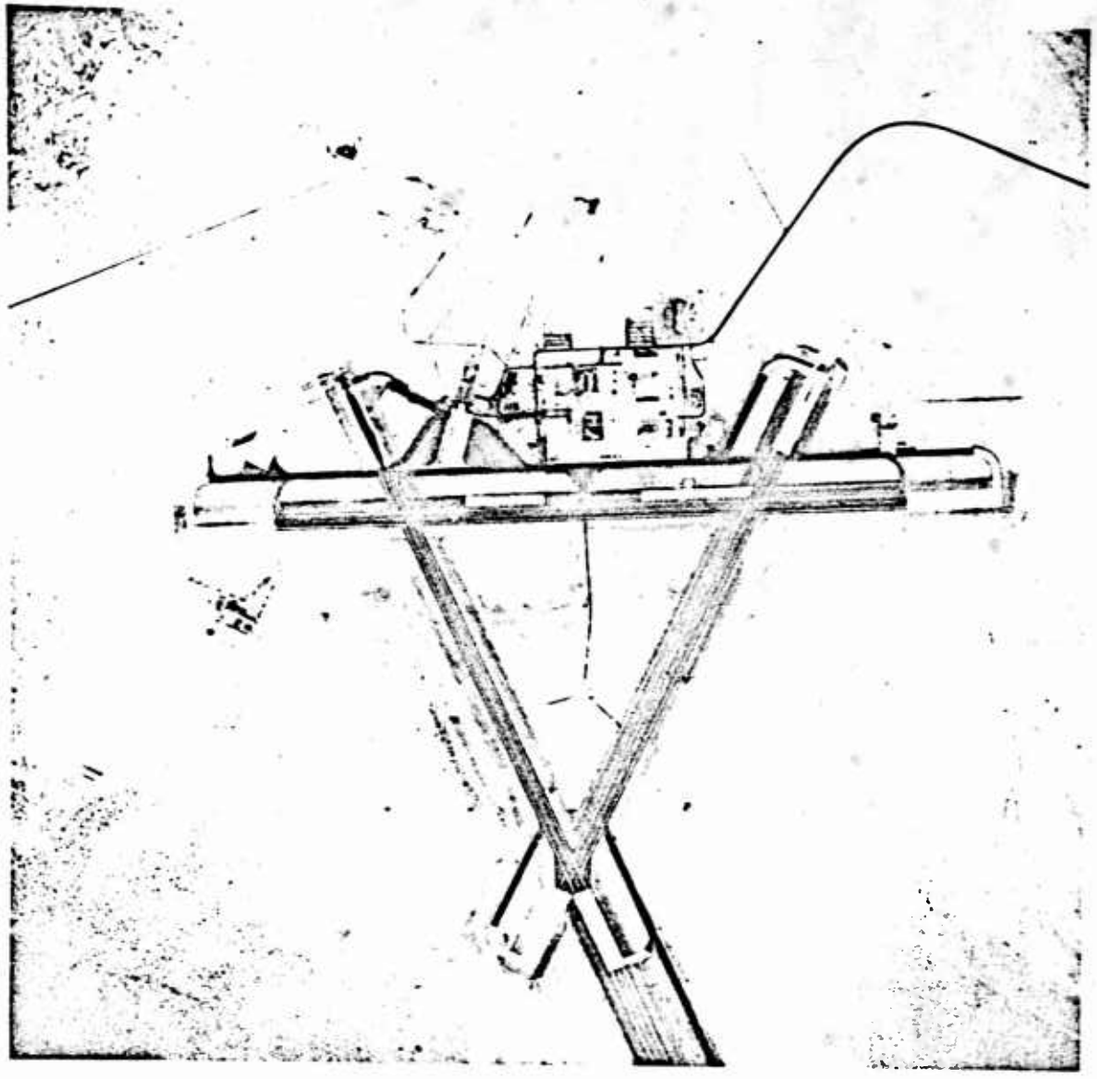


Figure 1. Aerial view of U. S. Naval Air Facility, China Lake, California.

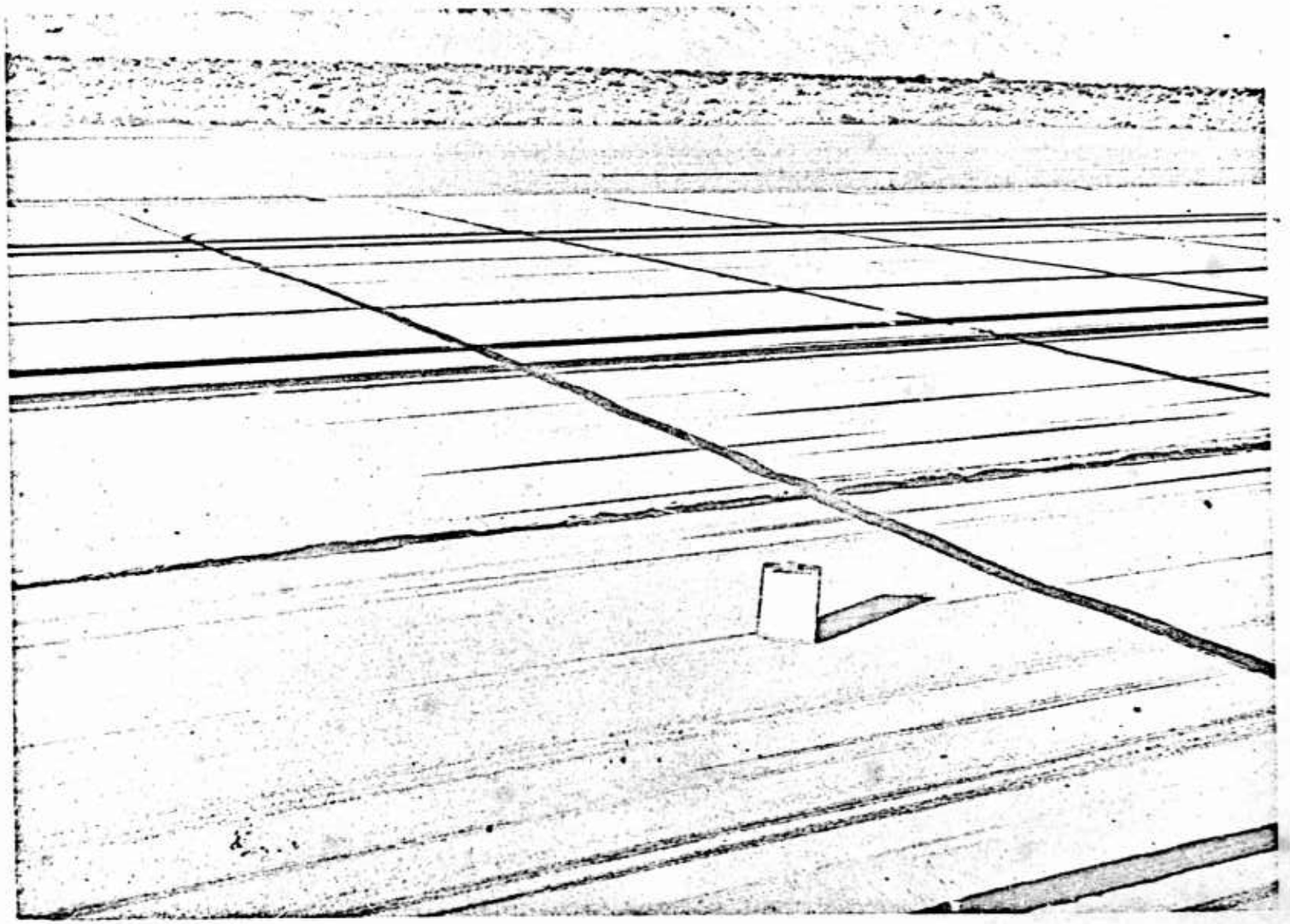


Figure 2. Surface defects in concrete on Runway 14-32, U. S. Naval Air Facility, China Lake, California.

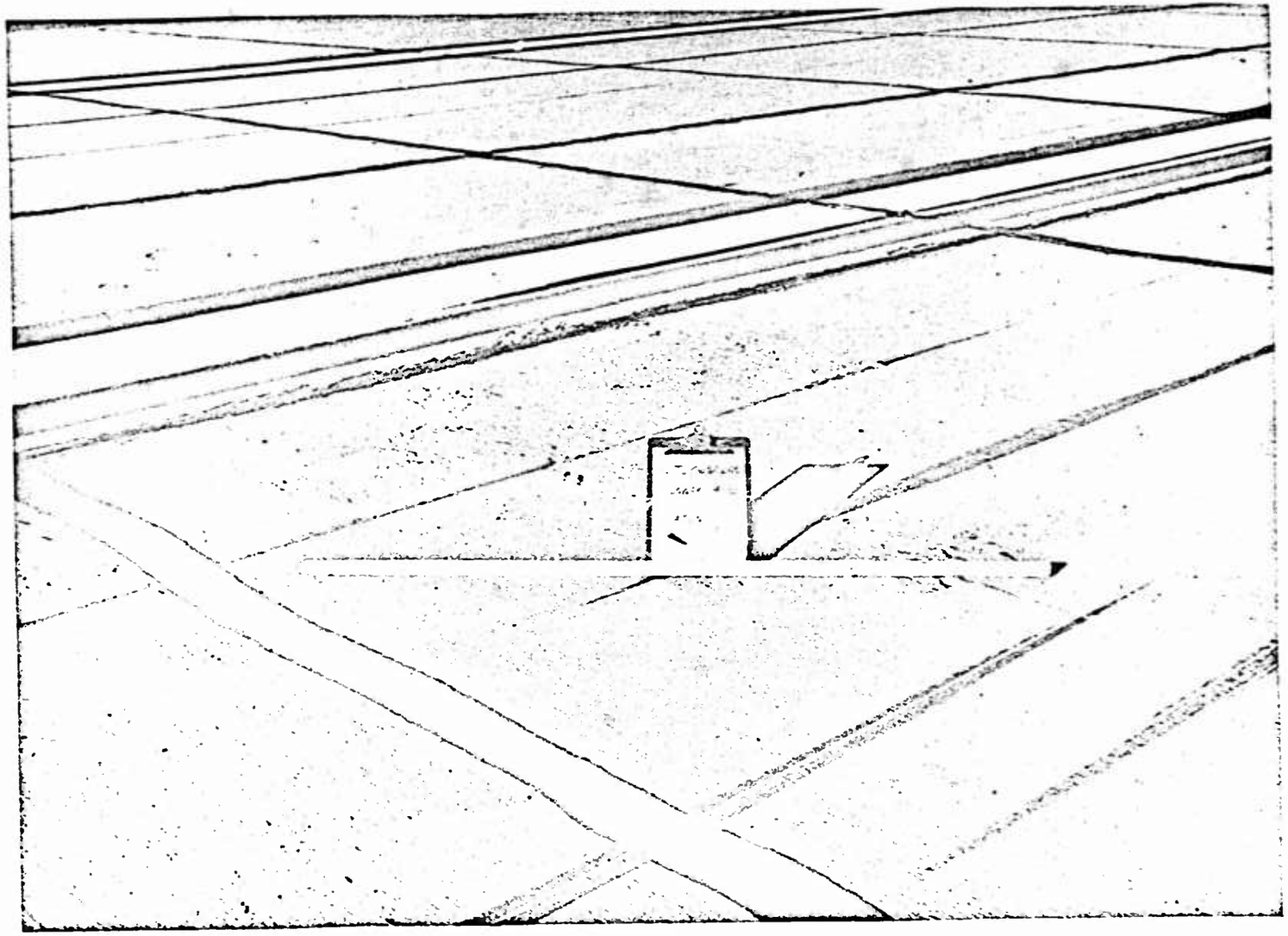


Figure 3. Close-up of concrete spall area of Runway 14-32, U. S. Naval Air Facility, China Lake, California.

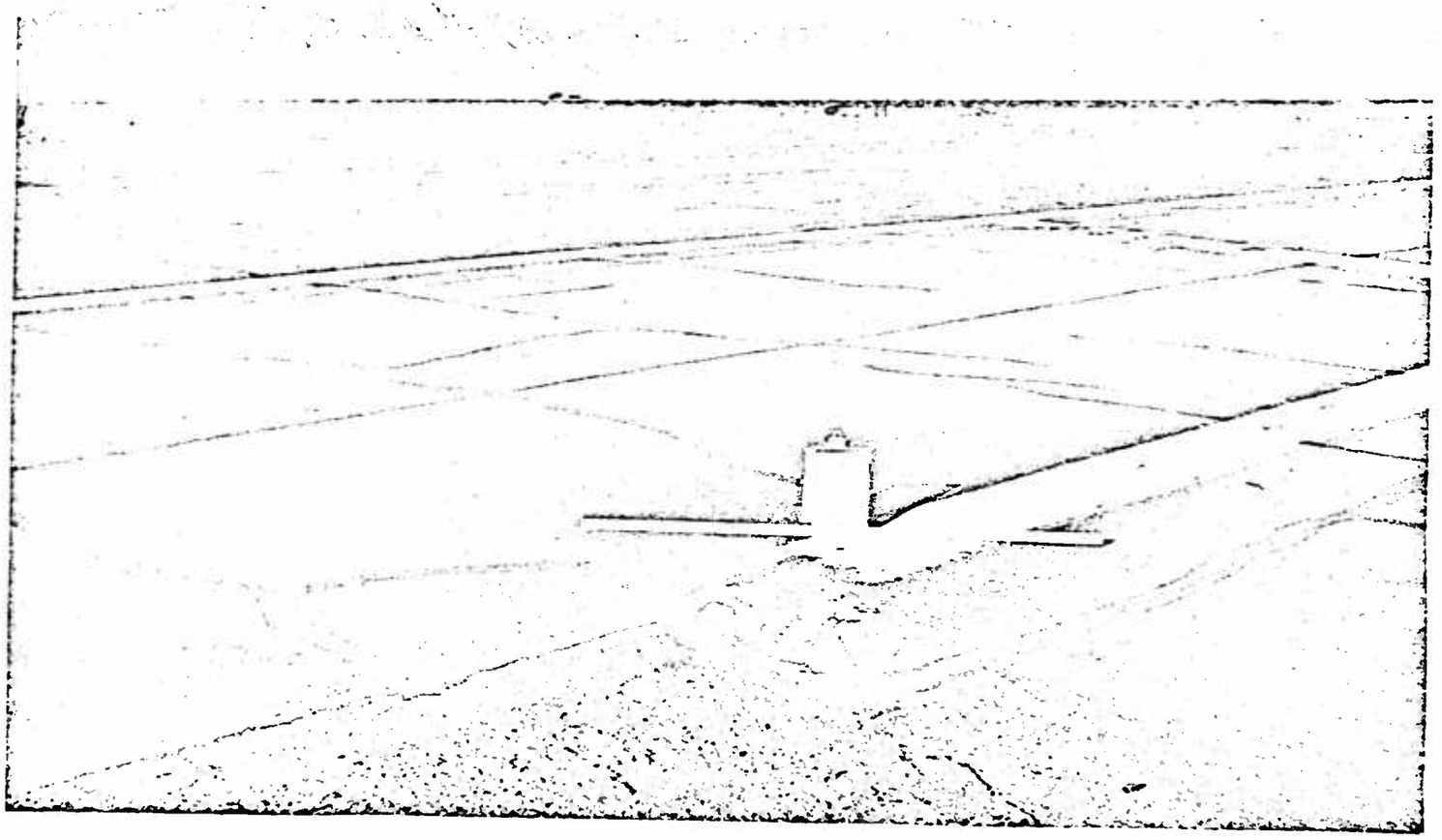


Figure 4. General view of Runway 14-32 at intersection of Runway 7-25 showing sealed and open longitudinal and transverse cracks. U. S. Naval Air Facility, China Lake, California.

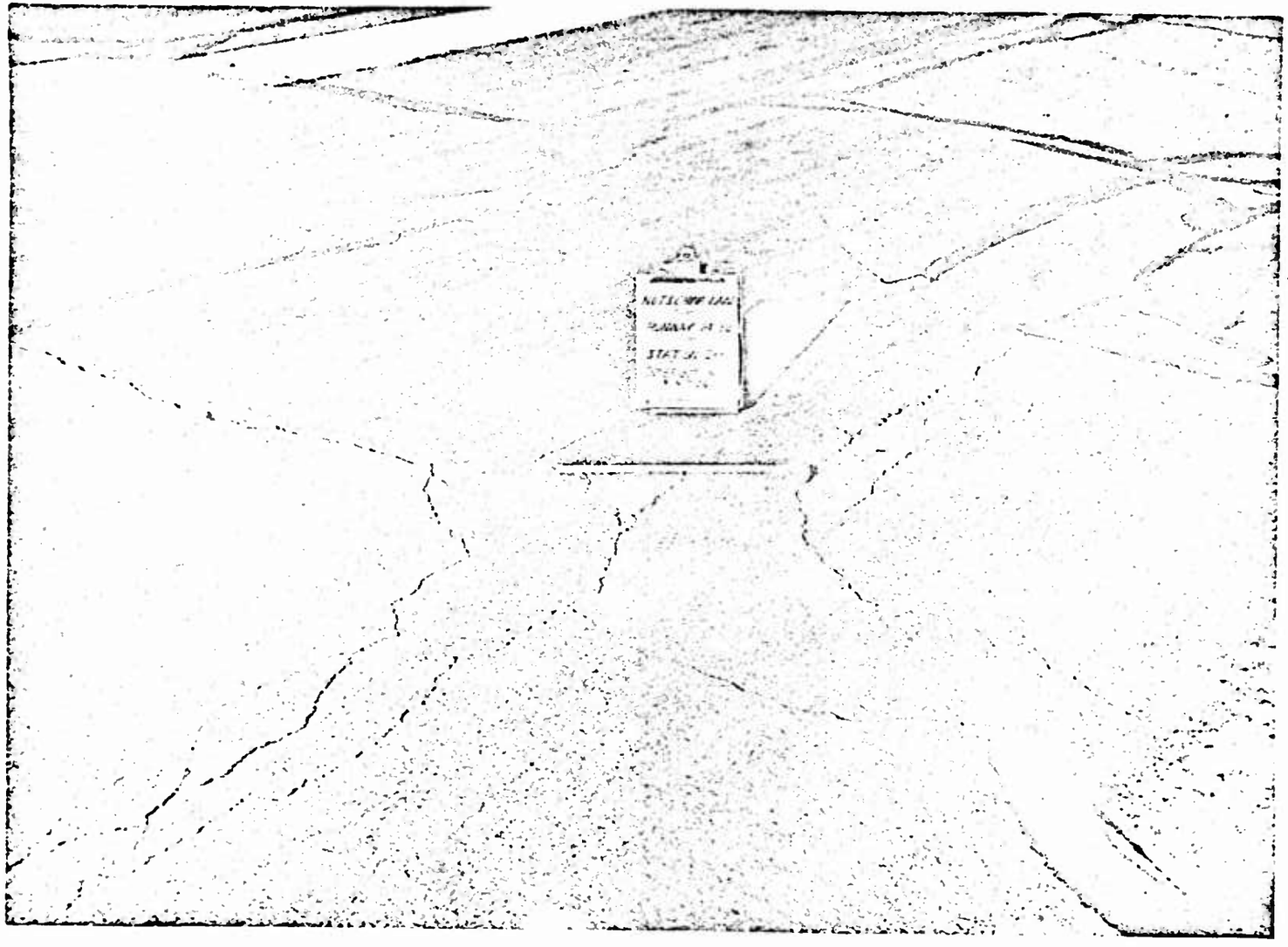


Figure 5. Close-up of asphaltic concrete deterioration at junction of Runway 14-32 and Runway 7-25. U. S. Naval Air Facility, China Lake, California.

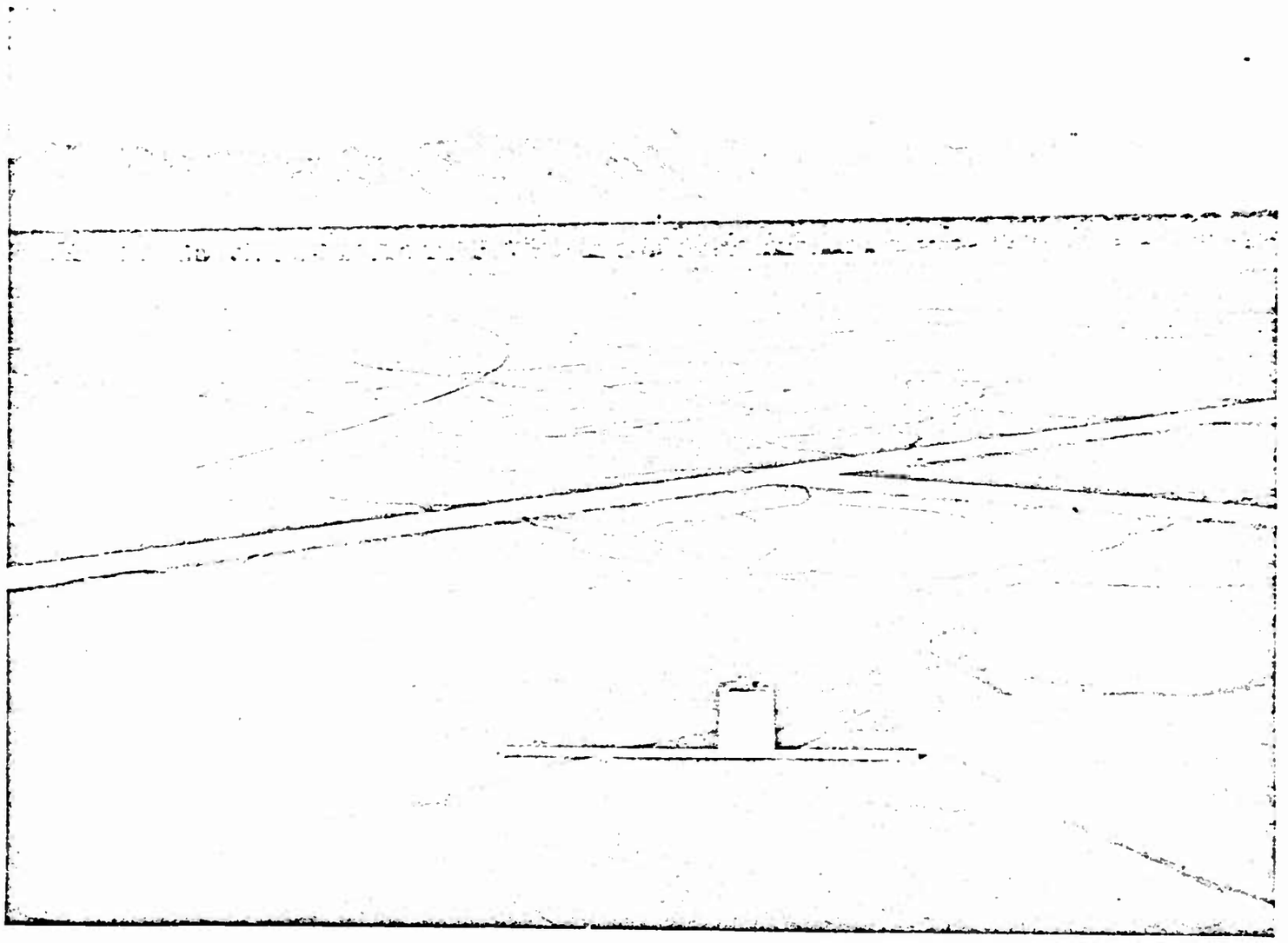


Figure 6. General view of Runway 14-32 at junction of Runway 3-21 showing poorly sealed longitudinal and transverse cracks. U. S. Naval Air Facility, China Lake, California.

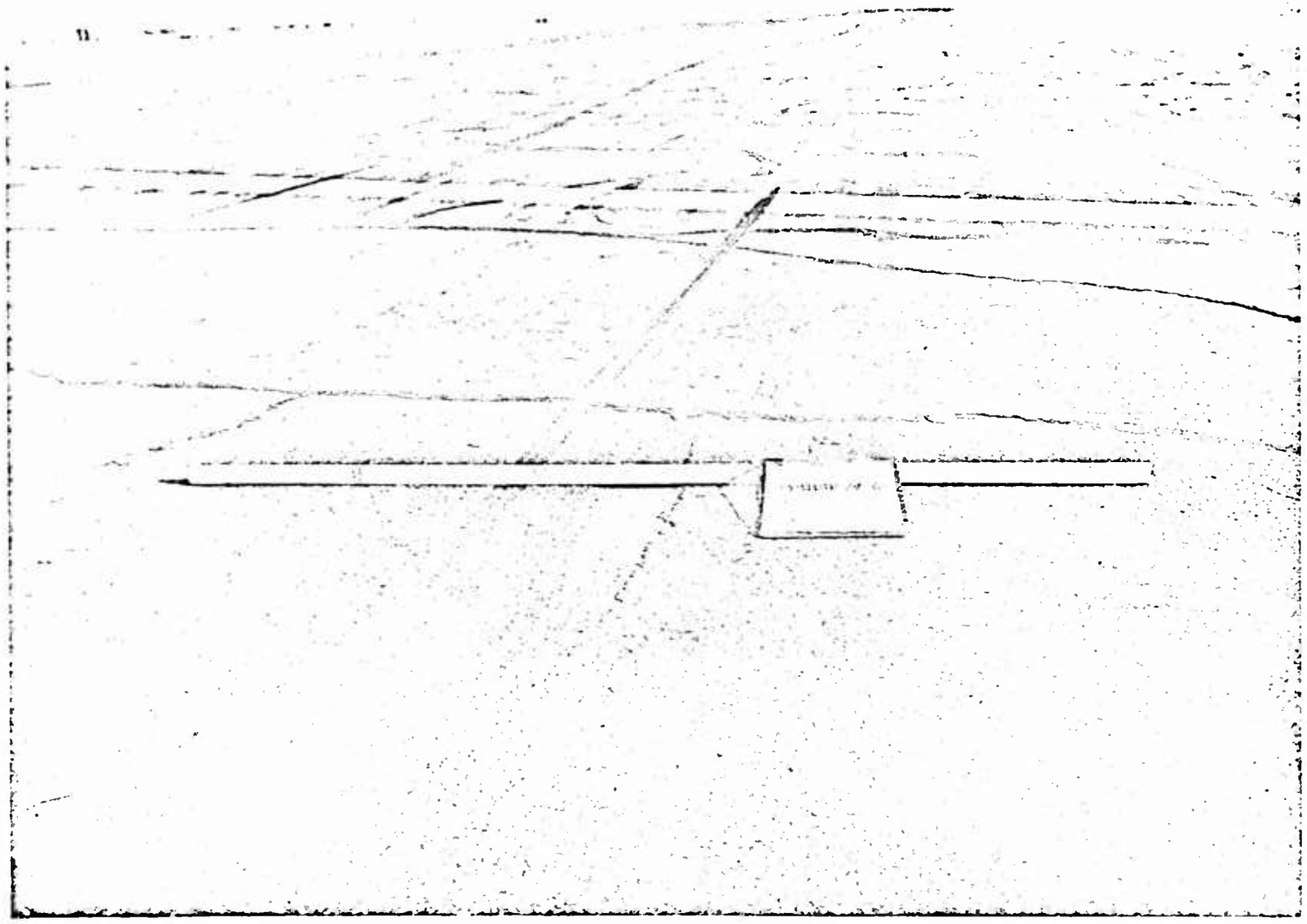


Figure 7. Rutting, longitudinal and transverse cracking, Runway 14-32 at junction of Runway 3-21. U. S. Naval Air Facility, China Lake, California.

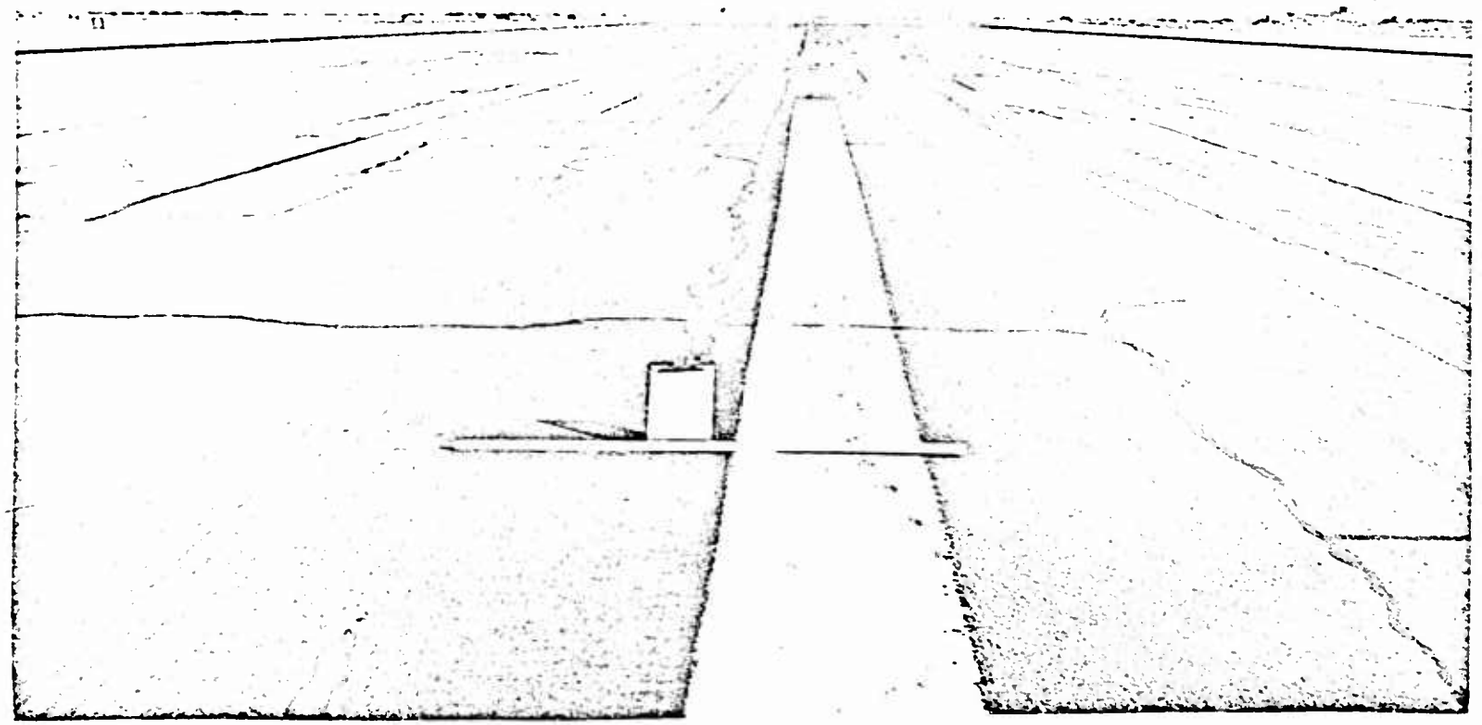


Figure 8. Longitudinal and transverse cracking in asphaltic concrete pavement, Runway 3-21, U. S. Naval Air Facility, China Lake, California.

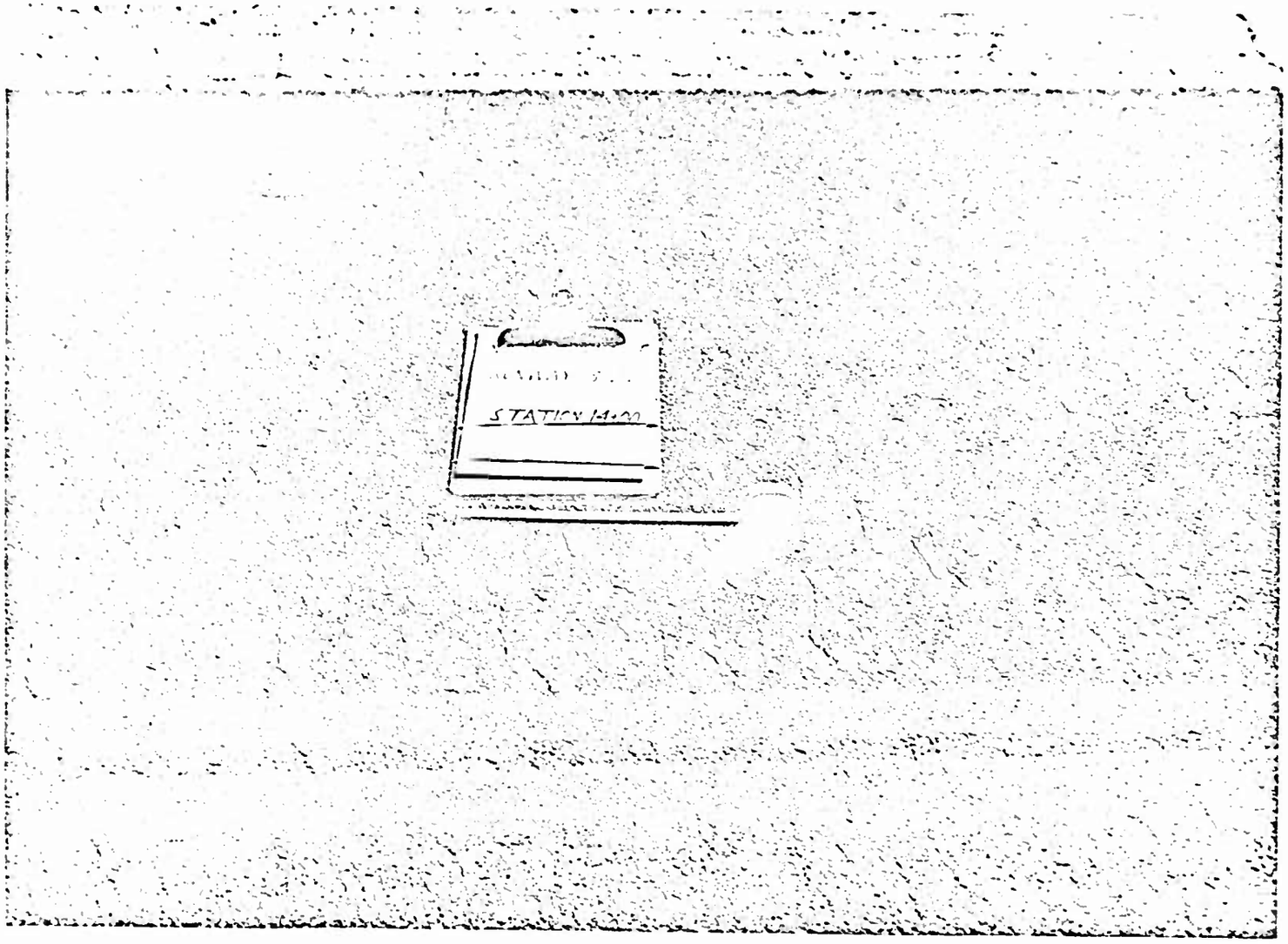


Figure 9. Chicken wire (3-inch pattern) on Runway 3-21, U. S. Naval Air Facility, China Lake, California.

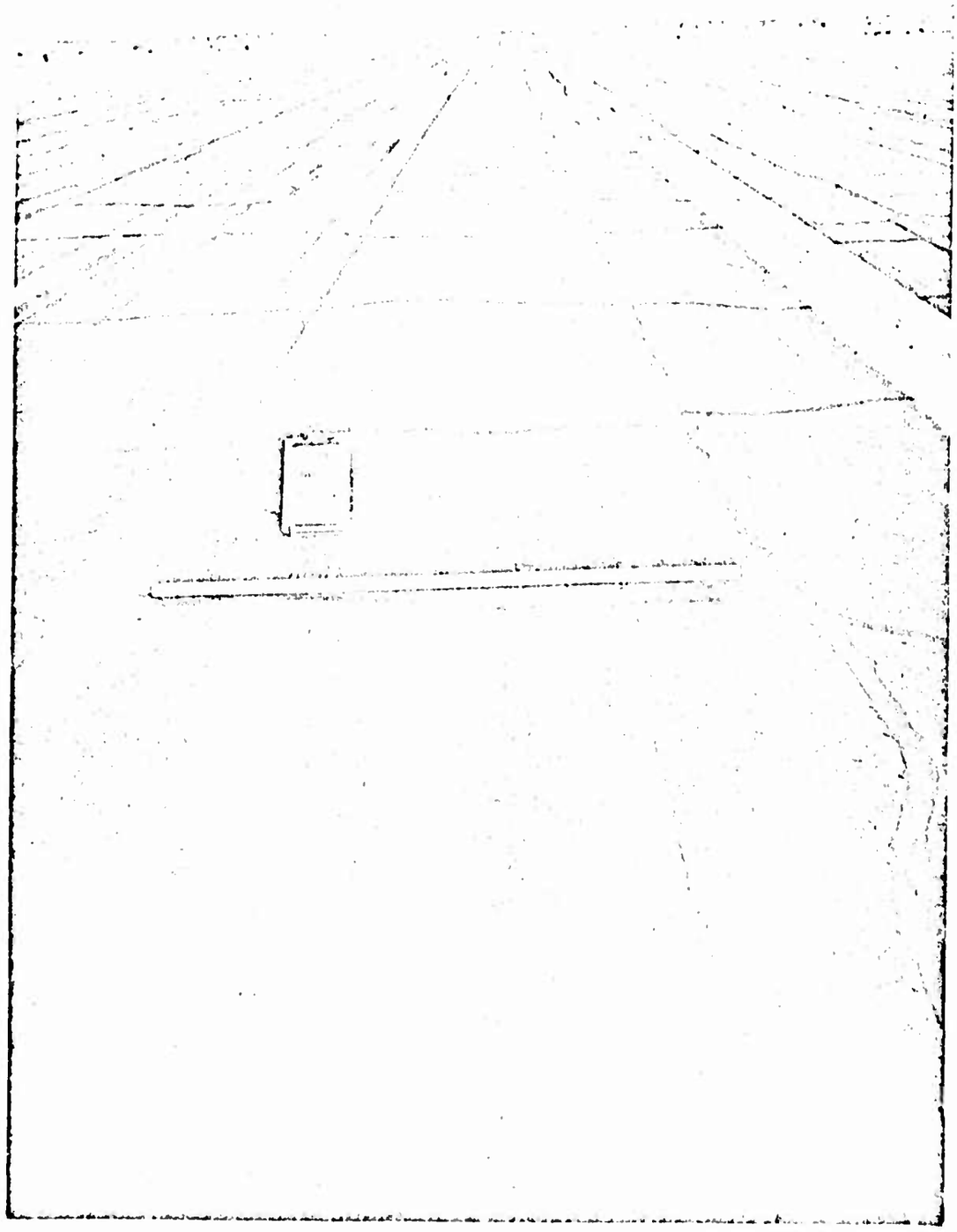


Figure 10. General view showing severe longitudinal and transverse cracks and unsealed longitudinal crack paralleling center line stripe on Runway 3-21, U. S. Naval Air Facility, China Lake, California.

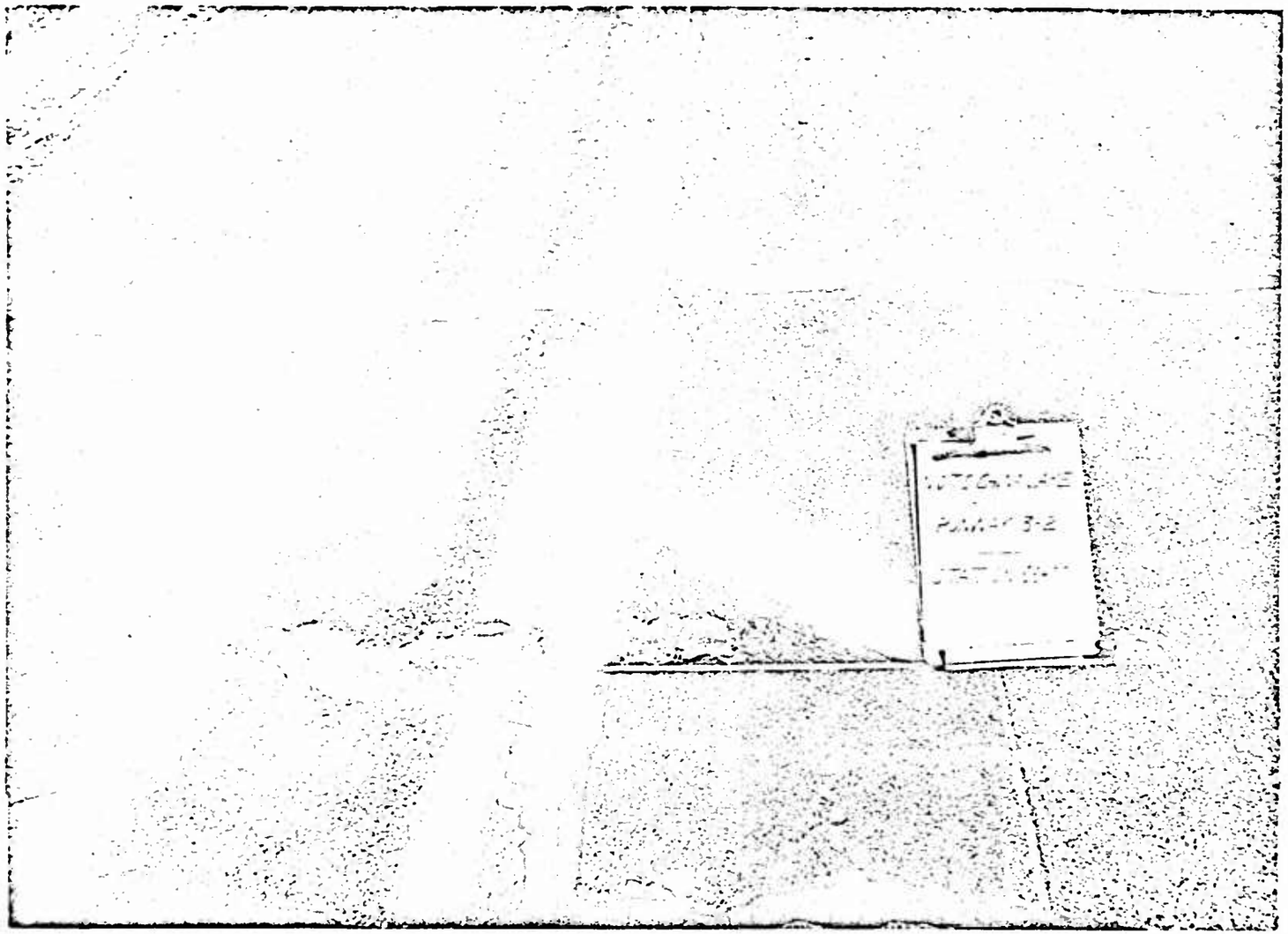


Figure 11. Close-up of poorly repaired transverse spall to left of center line stripe on Runway 3-21, U. S. Naval Air Facility, China Lake, California.

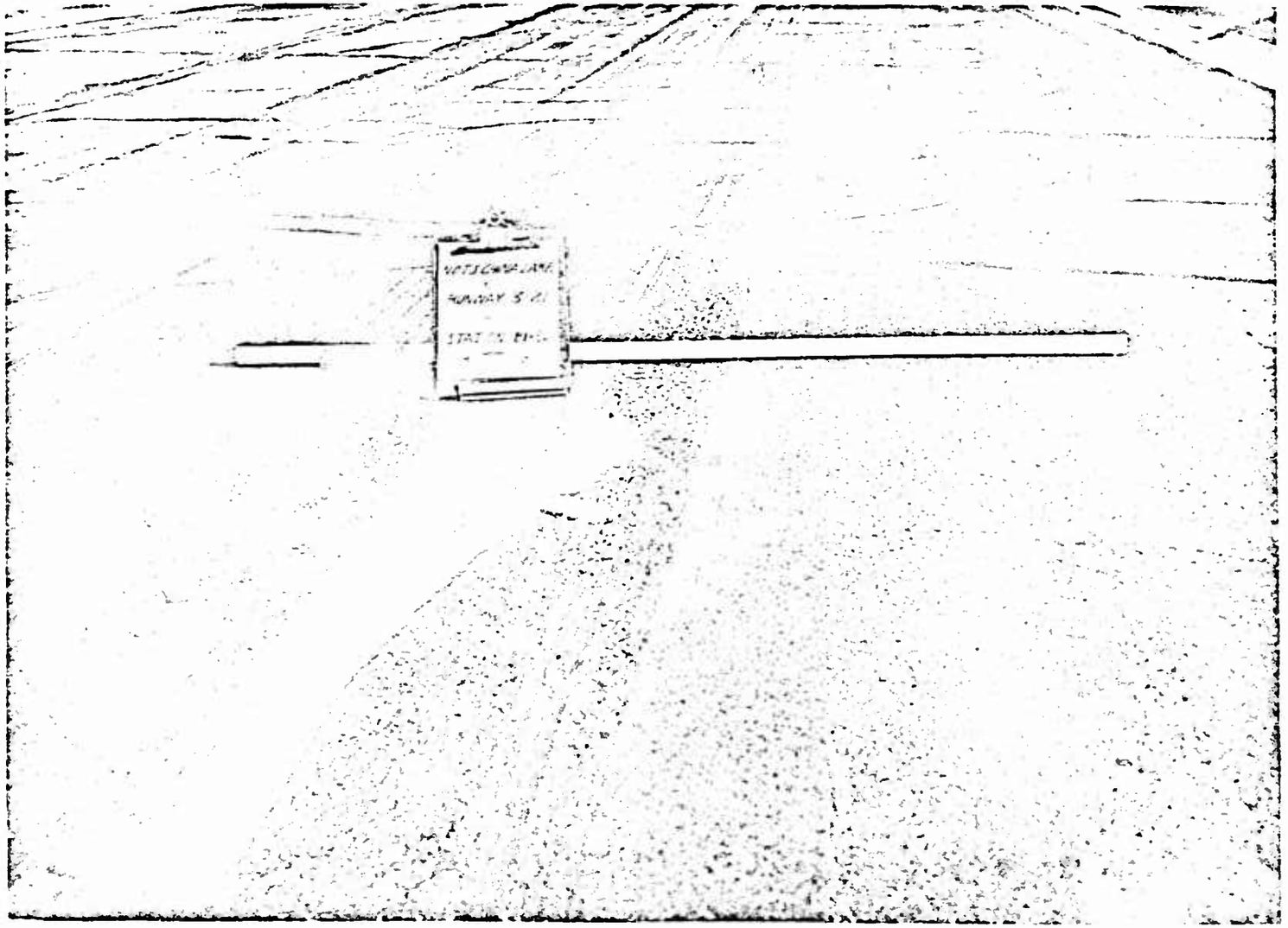


Figure 12. Rutting and open-stripped surface together with general deterioration on Runway 3-21, U. S. Naval Air Facility, China Lake, California.

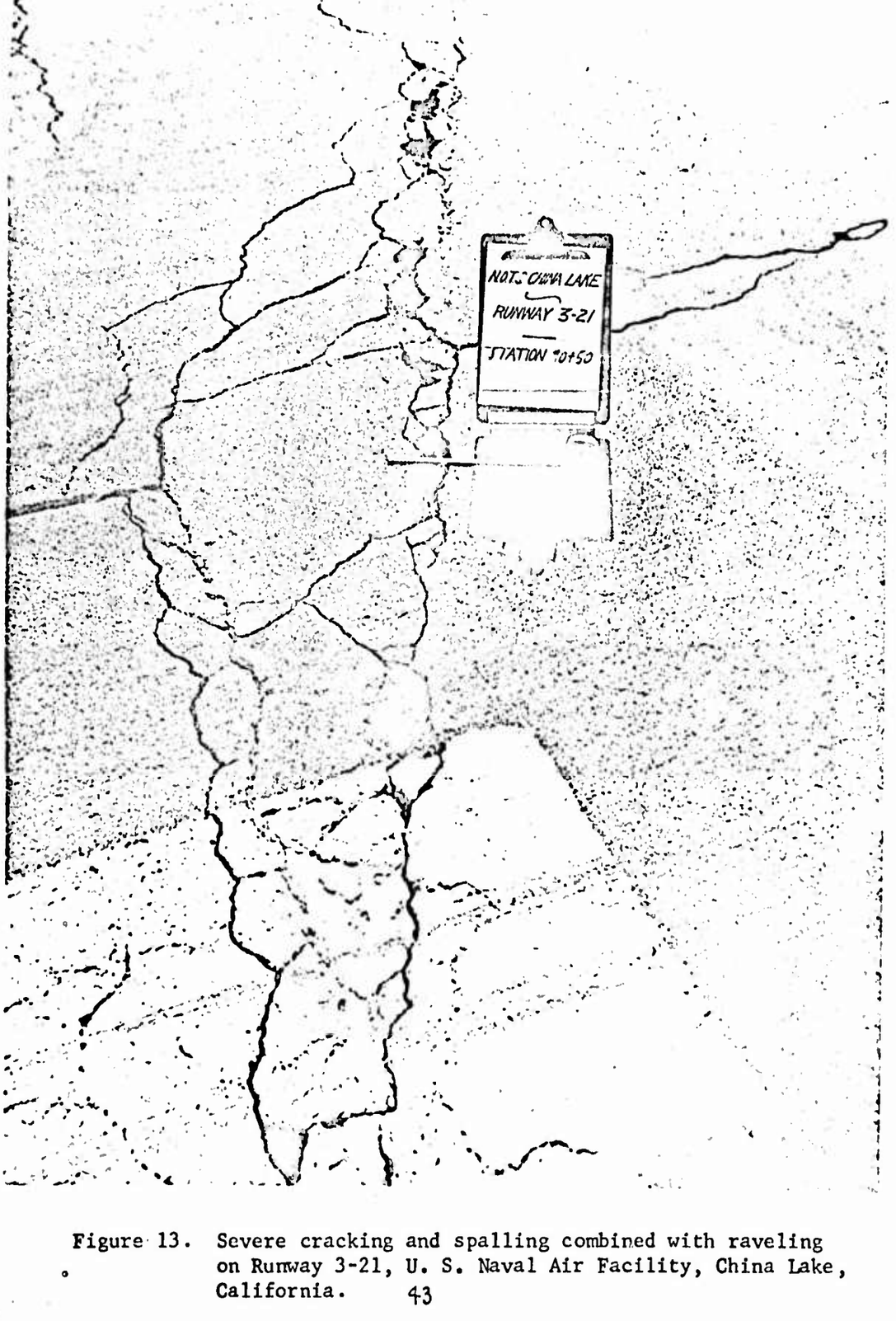


Figure 13. Severe cracking and spalling combined with raveling on Runway 3-21, U. S. Naval Air Facility, China Lake, California.

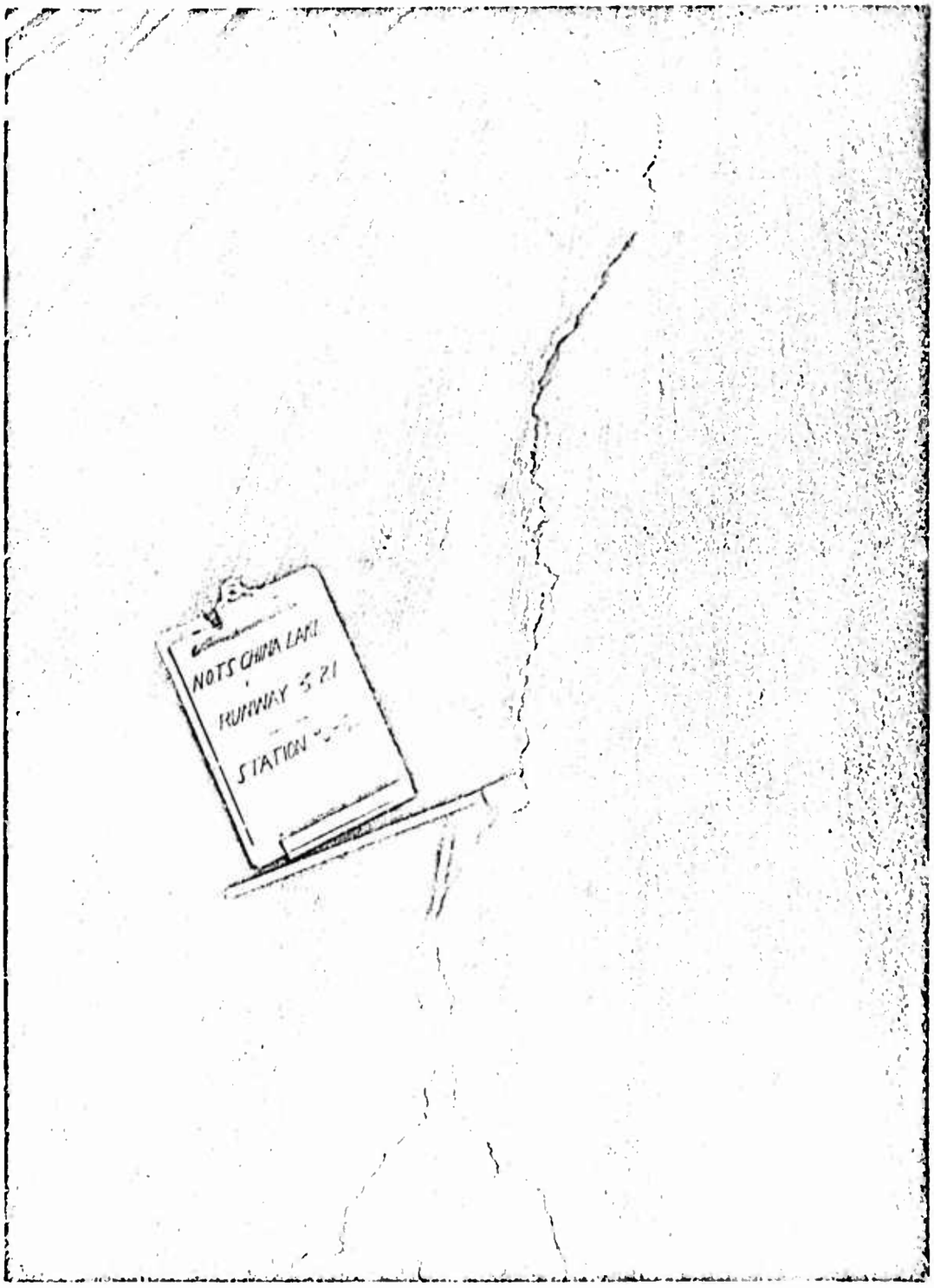


Figure 14. Close-up view of raveling along longitudinal crack on Runway 3-21, U. S. Naval Air Facility, China Lake, California.

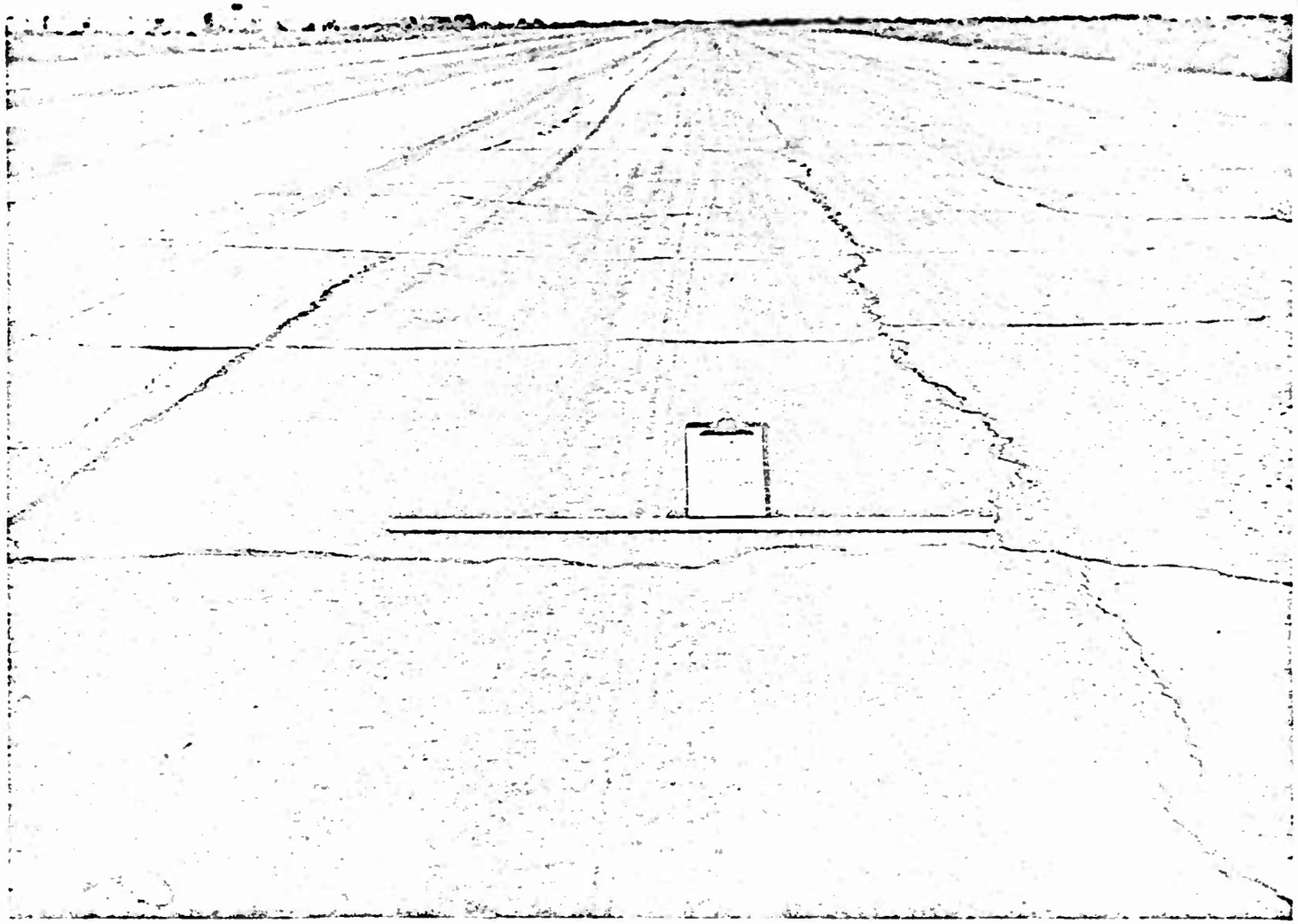


Figure 15. General view showing severe longitudinal and transverse cracks with additional deterioration within major crack pattern on Taxiway 14-32, U. S. Naval Air Facility, China Lake, California.

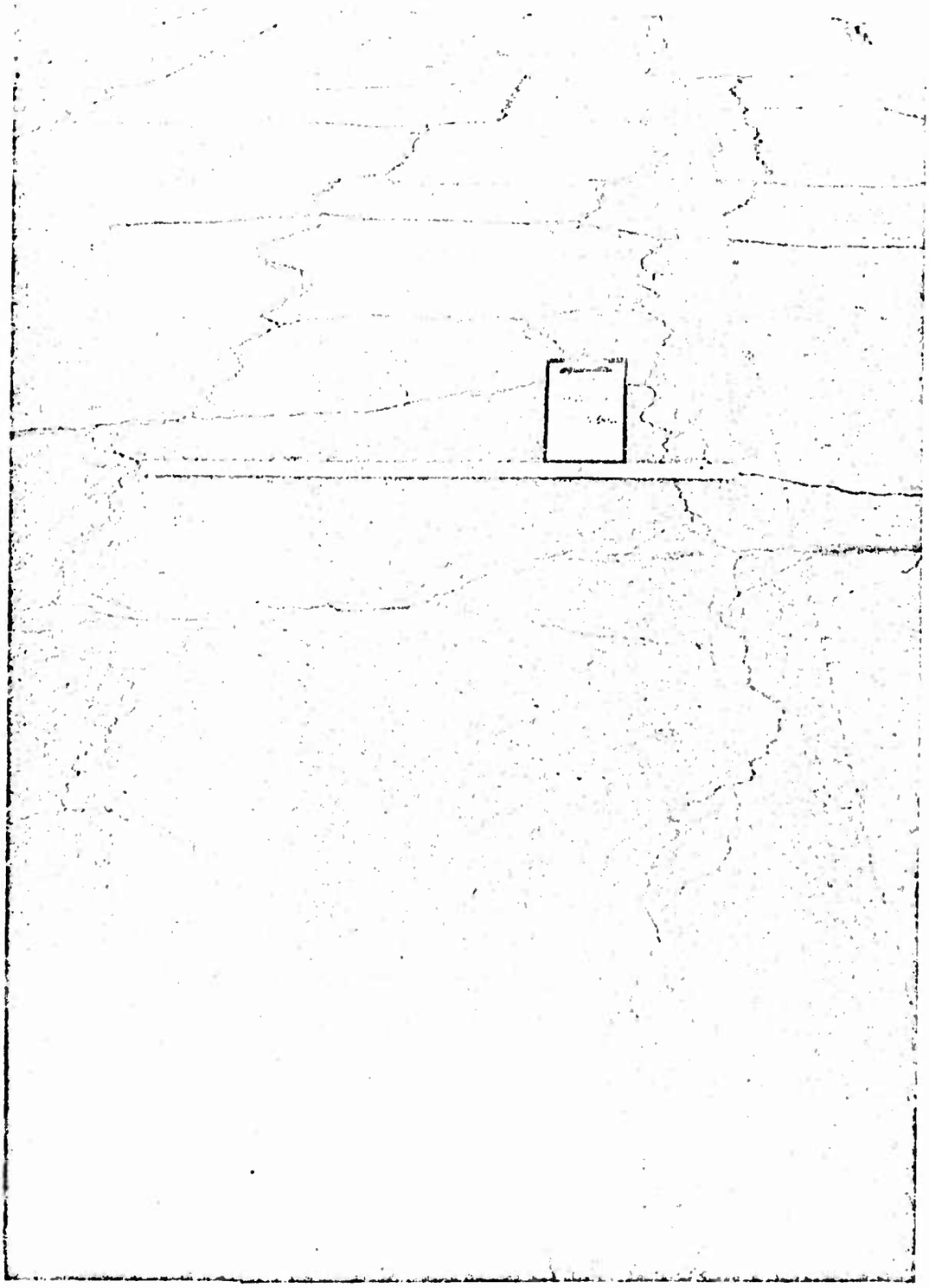


Figure 16. Close-up of major crack pattern on Taxiway 14-32, U. S. Naval Air Facility, China Lake, California.

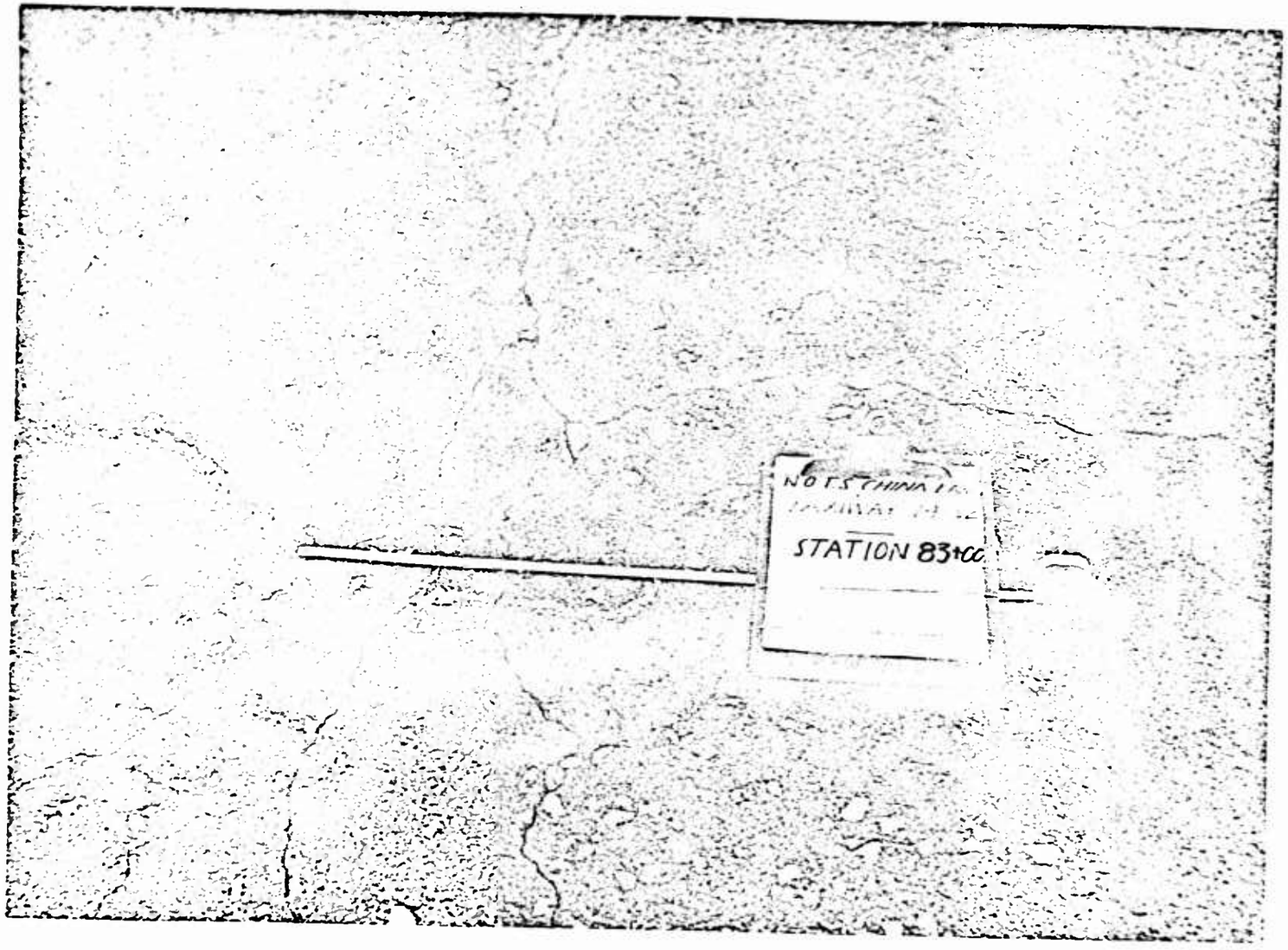


Figure 17. Close-up of surface deterioration on Taxiway 14-32, U. S. Naval Air Facility, China Lake, California.

Figure 18. Poor portland cement concrete corner patch with additional cracking and spalling on Taxiway 3, U. S. Naval Air Facility, China Lake, California.

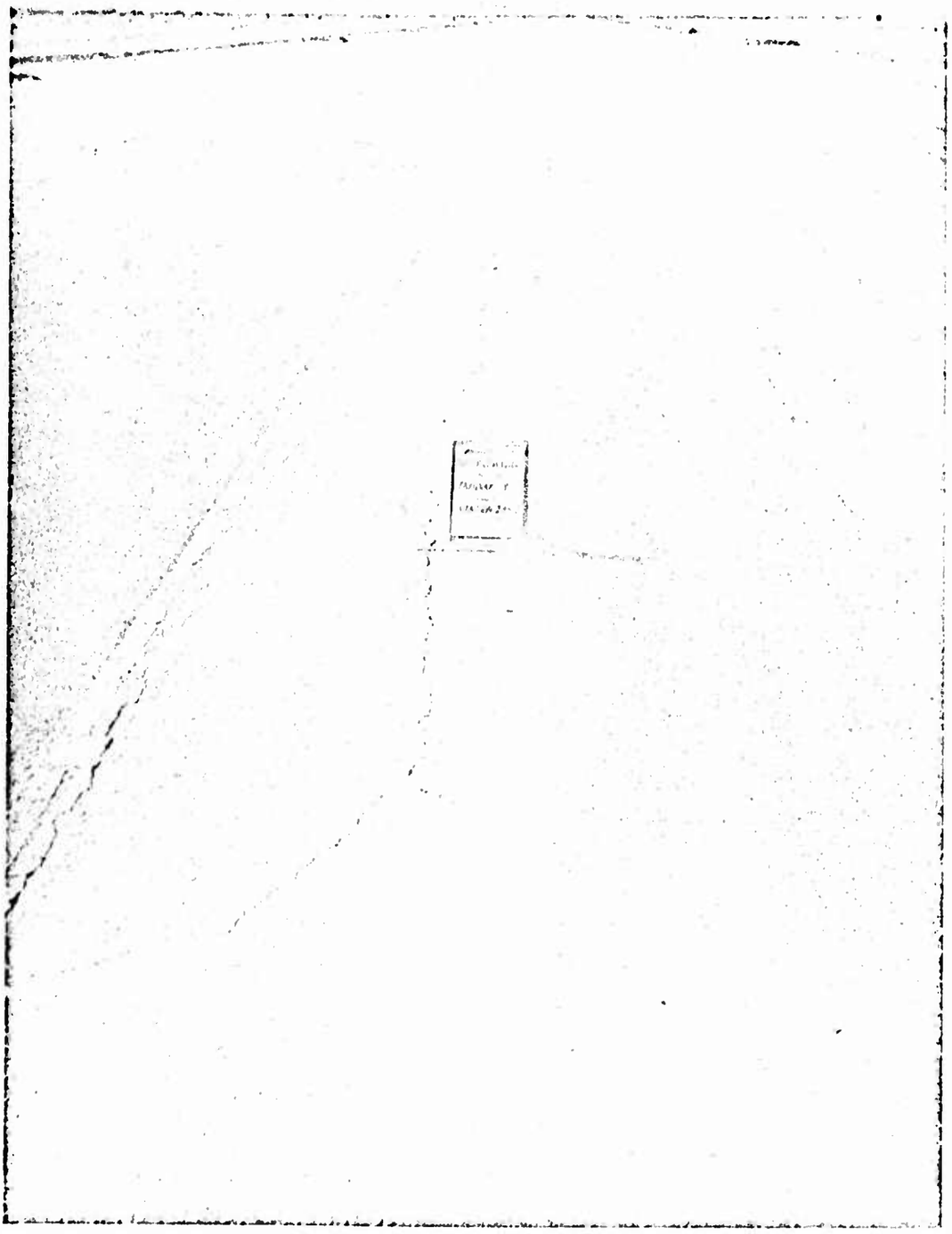


Figure 19. Rutting, map, longitudinal, and transverse cracking on Taxiway 3, U. S. Naval Air Facility, China Lake, California.

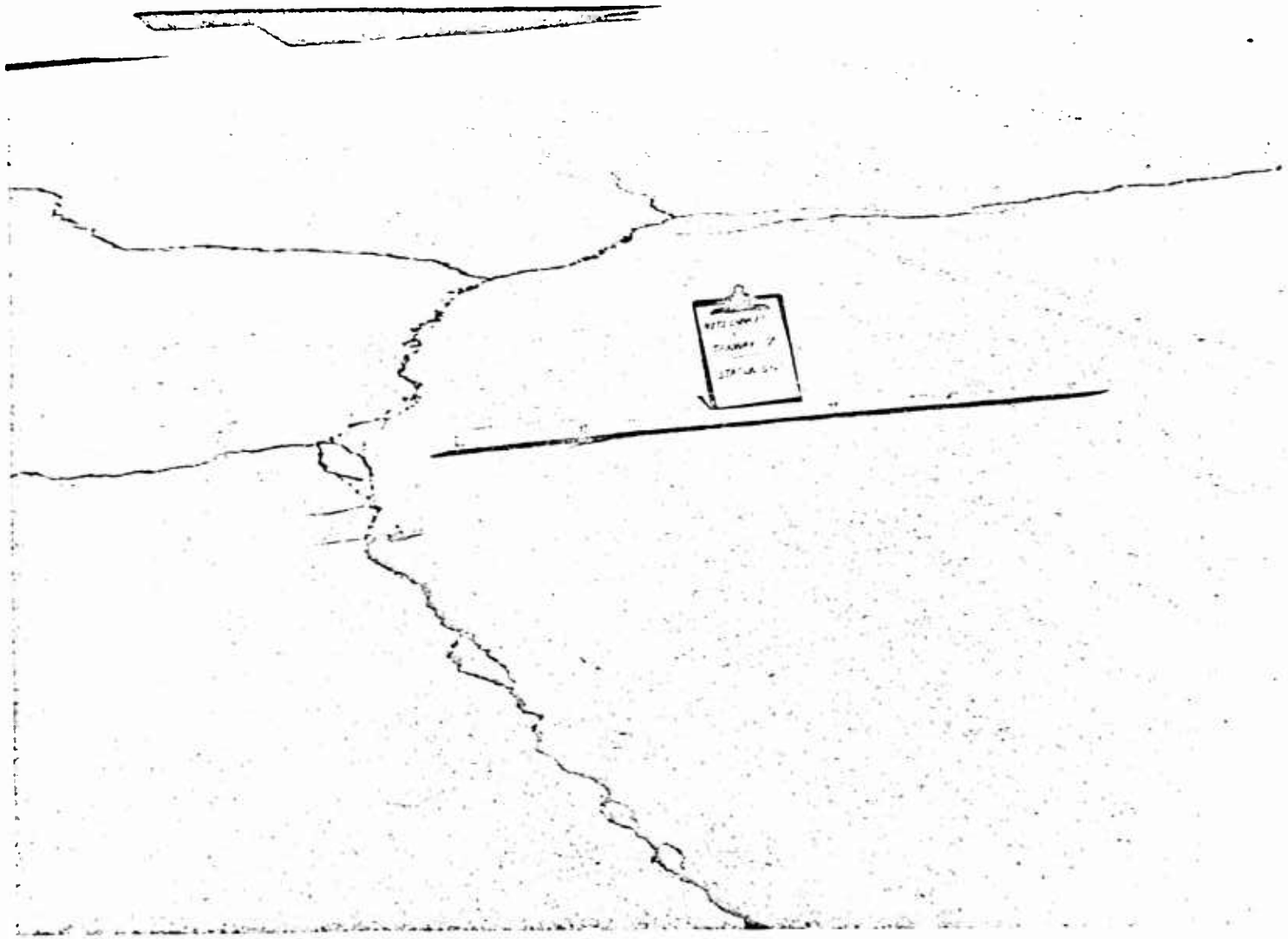


Figure 20. Severe longitudinal, diagonal, and transverse cracking and raveling on Taxiway 7, U. S. Naval Air Facility, China Lake, California.

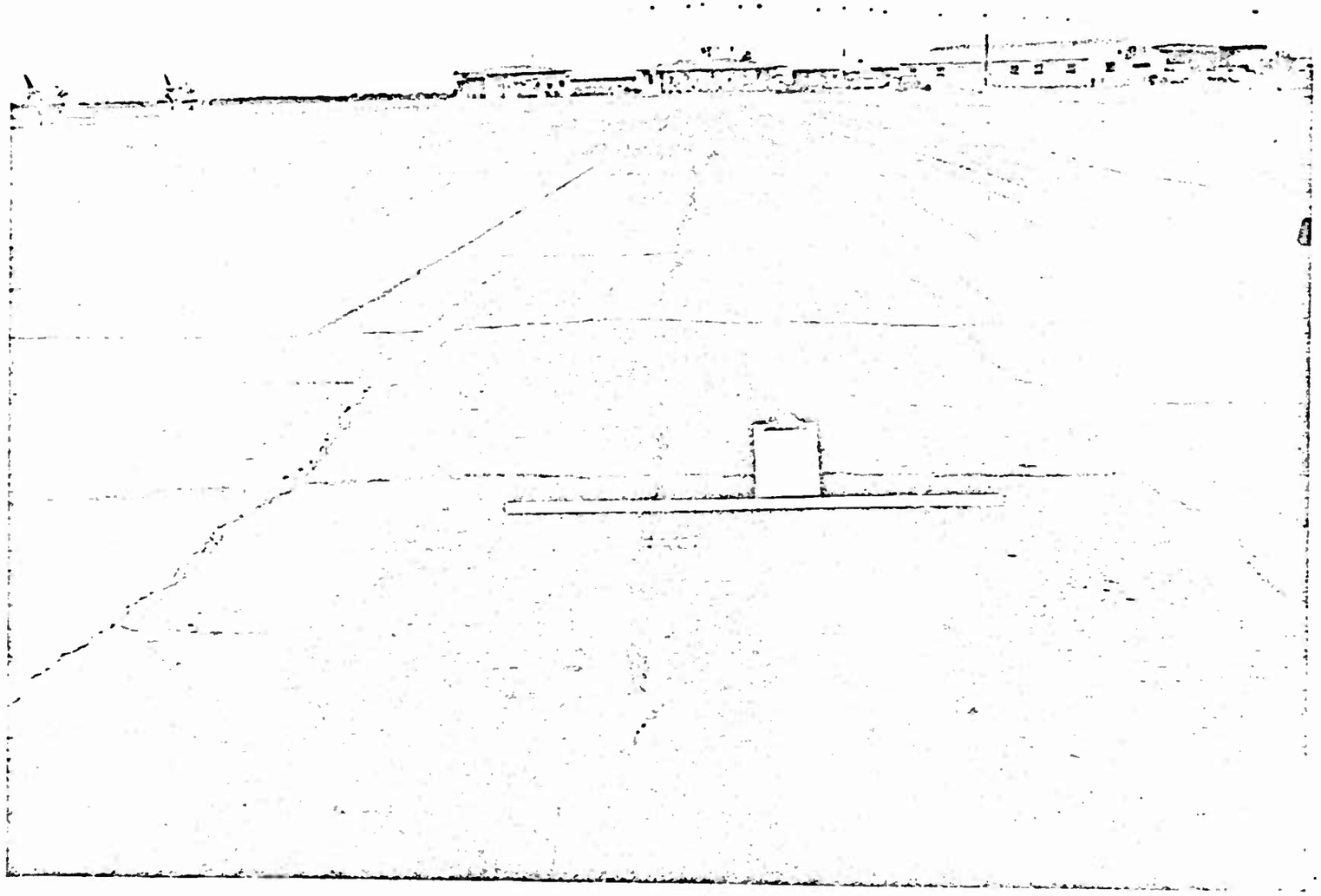


Figure 21. General view of section of Taxiway 21 showing longitudinal and transverse cracks and other defects. U. S. Naval Air Facility, China Lake, California.

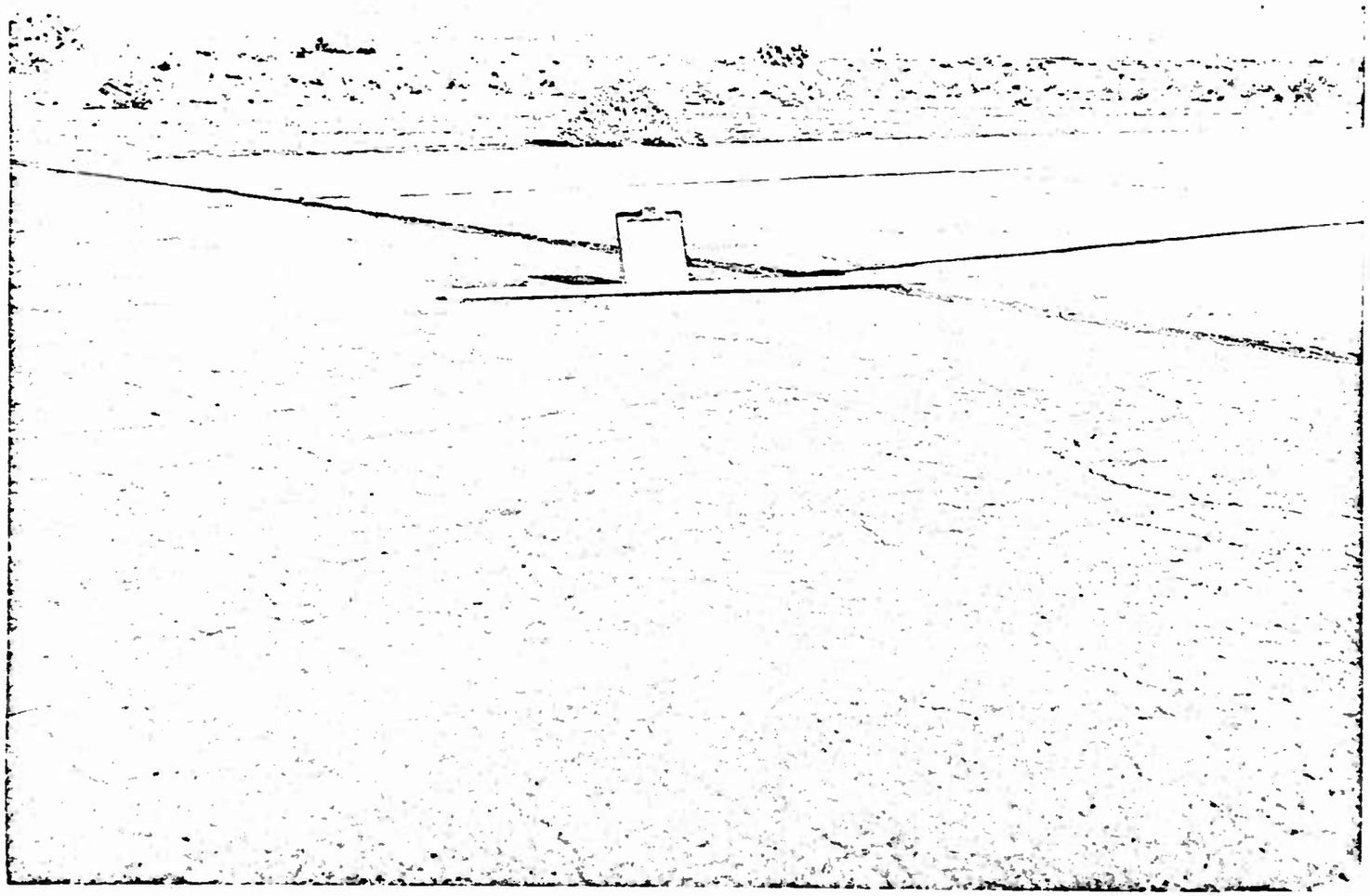


Figure 22. Severe crack pattern and settlement with wide crack at transition of concrete portion of Taxiway 25. U. S. Naval Air Facility, China Lake, California.

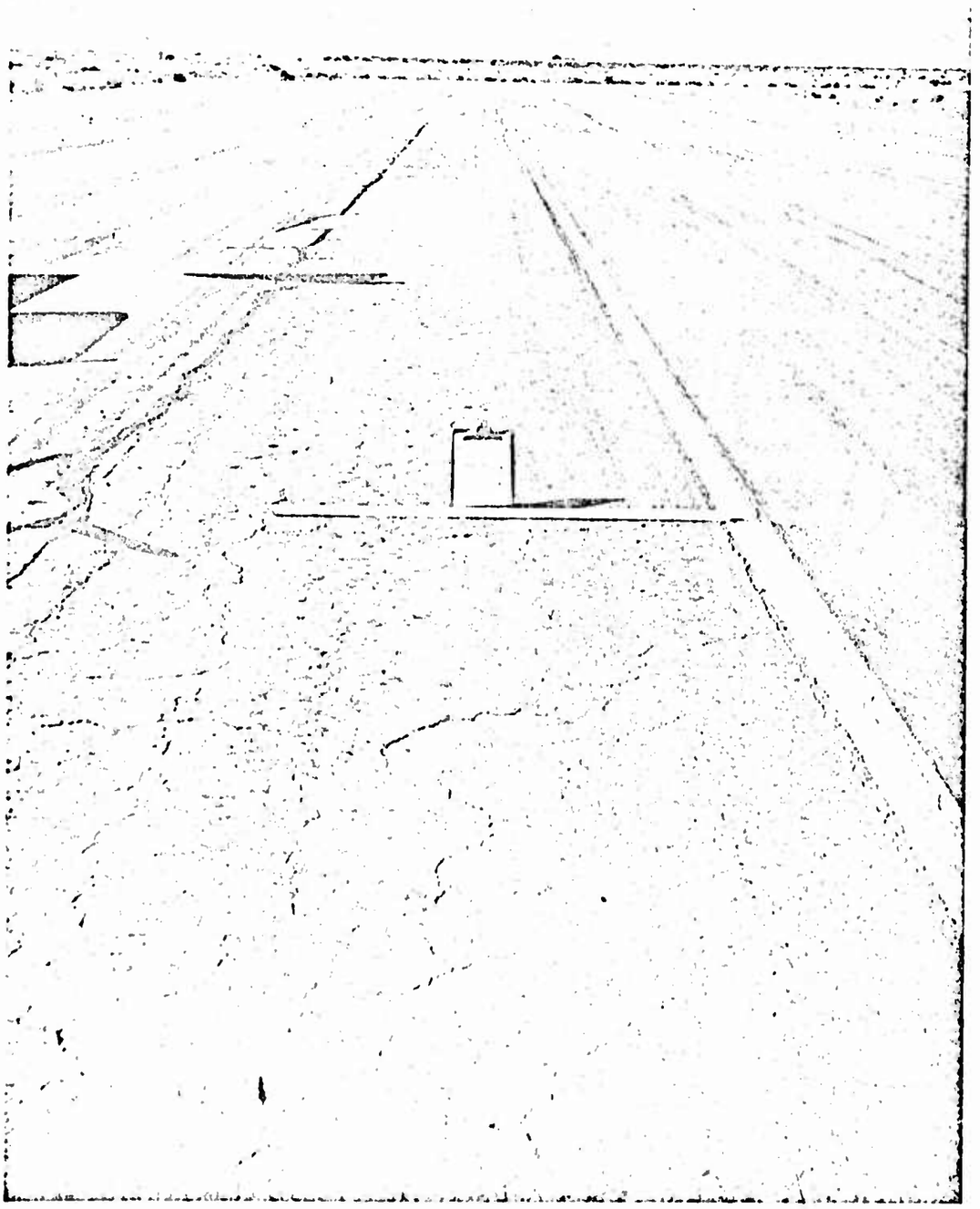


Figure 23. General view of Taxiway 25 showing various types of cracks and rutting. U. S. Naval Air Facility, China Lake, California.

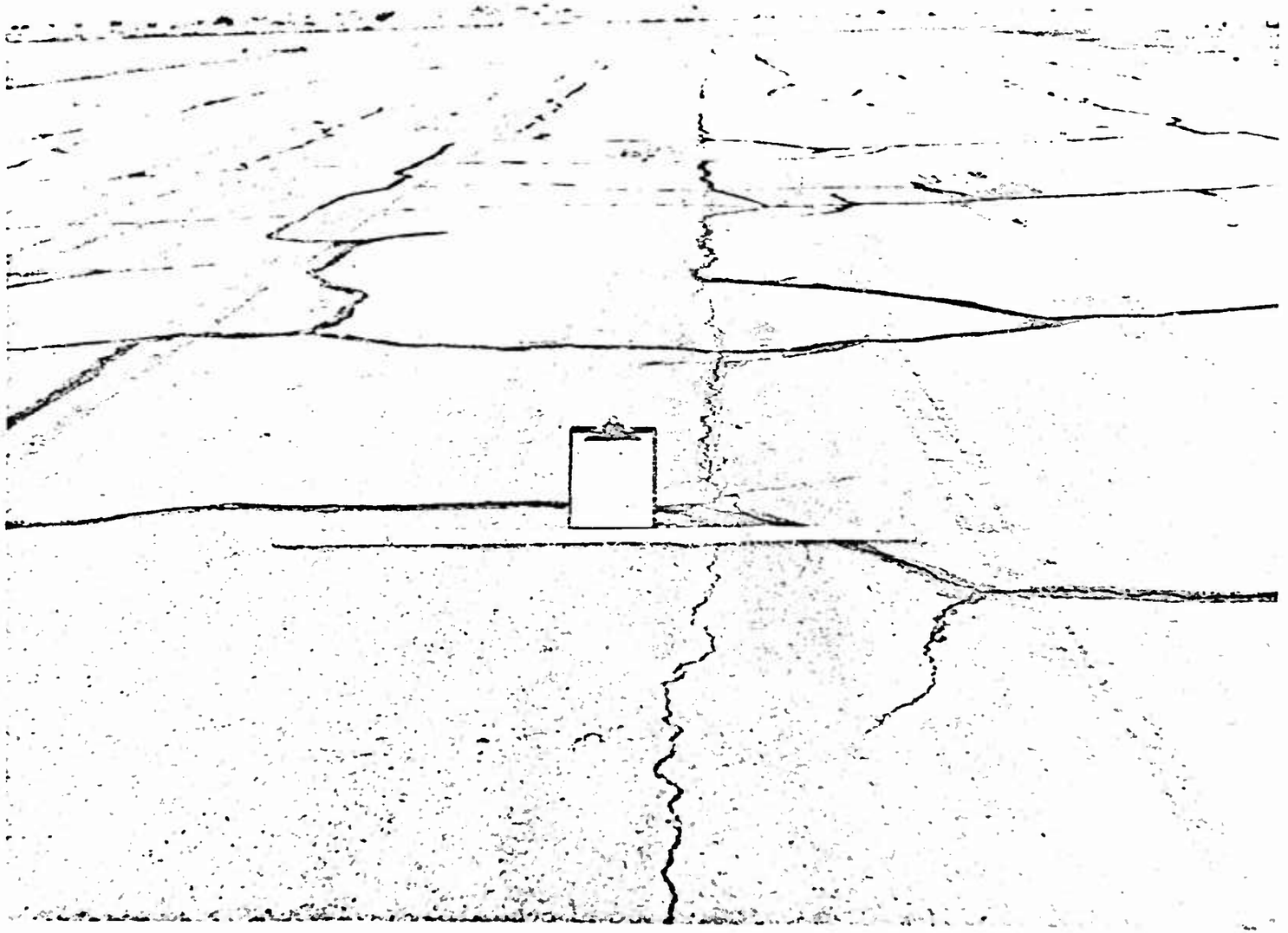


Figure 24. General view of Connecting Taxiway A showing severe crack patterns, U. S. Naval Air Facility, China Lake, California.

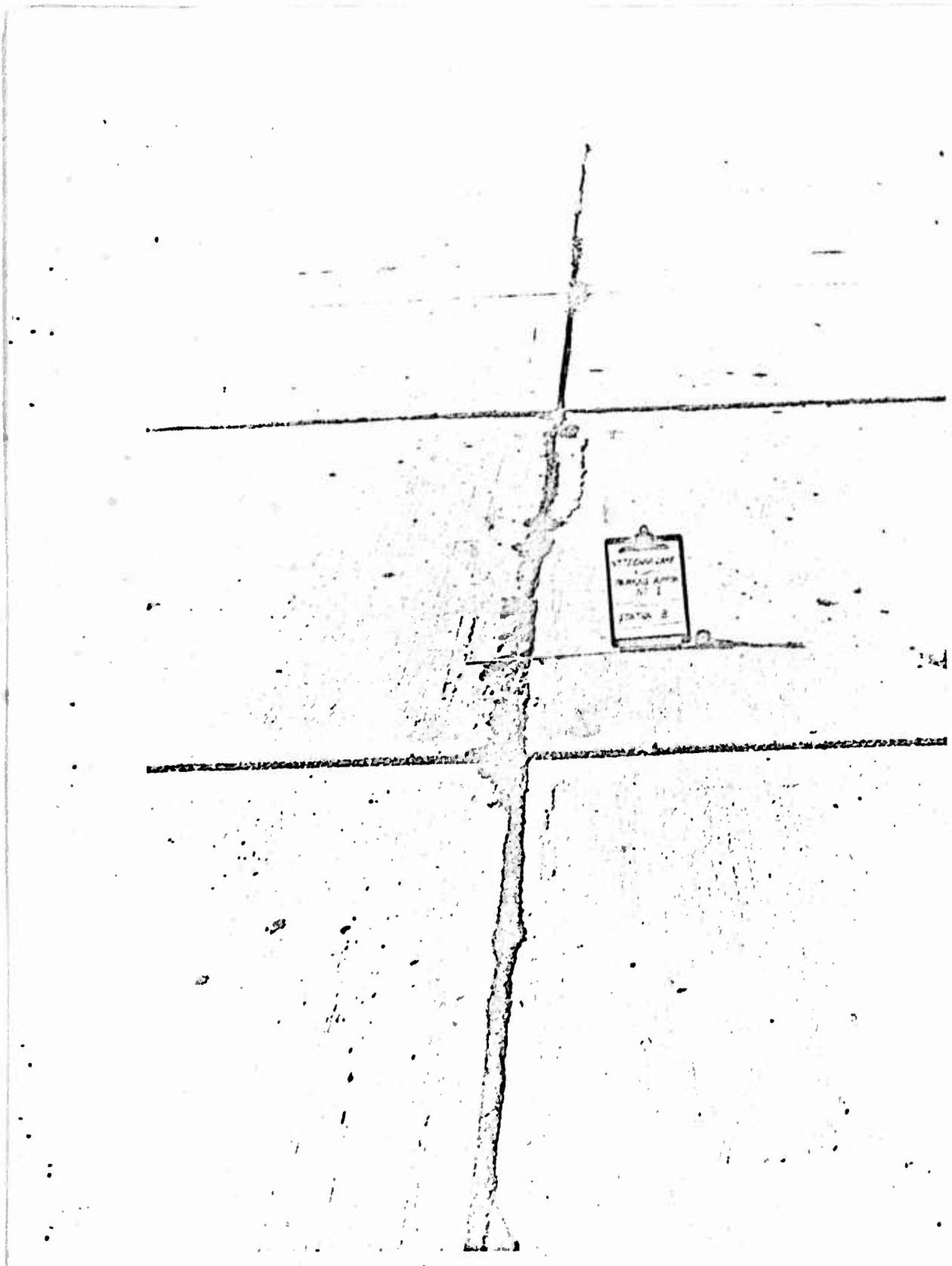


Figure 25. Longitudinal joint spall and patches on Parking Apron 1. The spall appears to have been a patch. U. S. Naval Air Facility, China Lake, California.

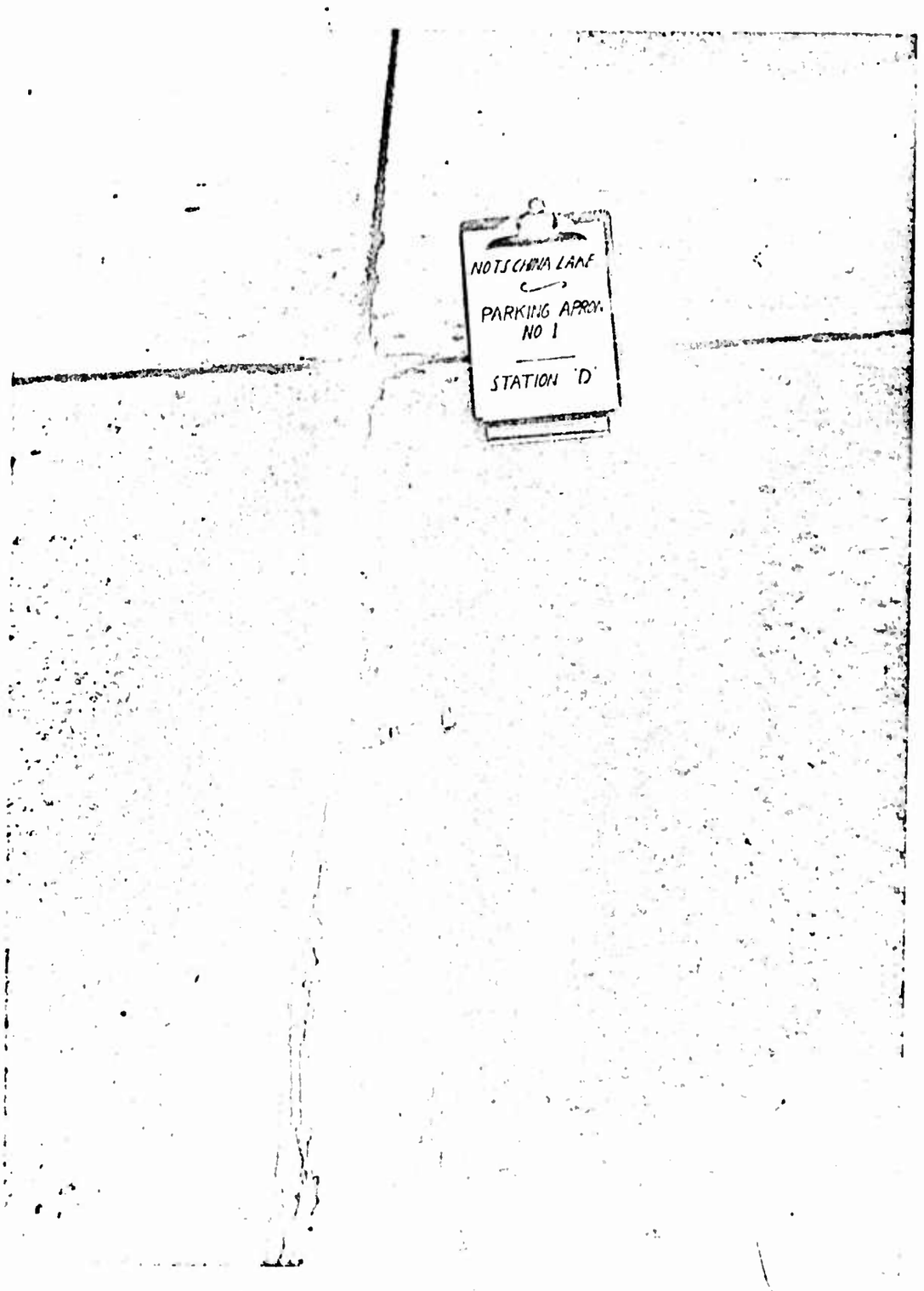


Figure 27. Minor joint intersection failure. Many embedded pebble in joint seal and surface crazing on Parking Apron 1. U. S. Naval Air Facility, China Lake, California.

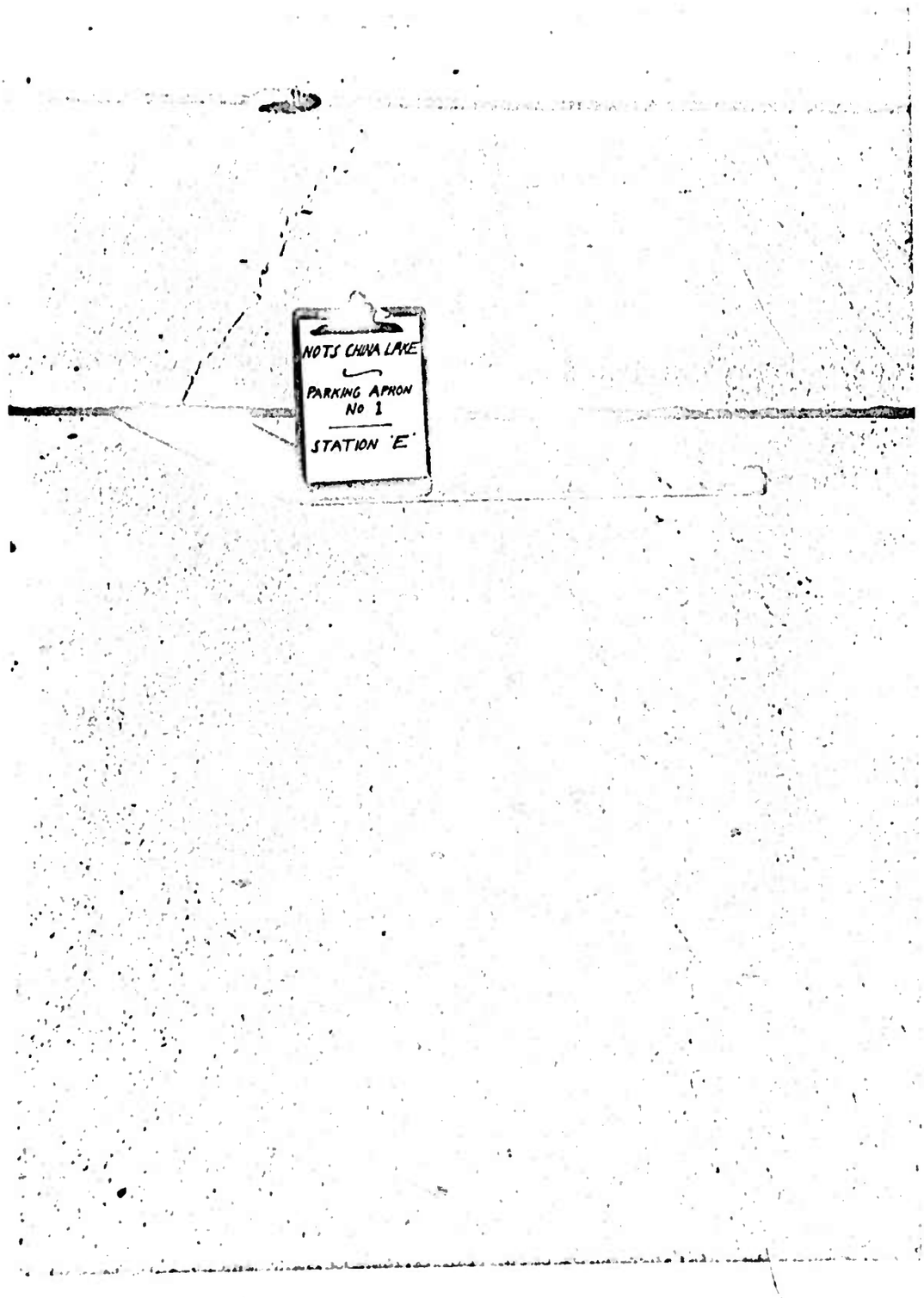


Figure 28. Transverse and shrinkage cracks on portion of Parking Apron 1. U. S. Naval Air Facility, China Lake, California.

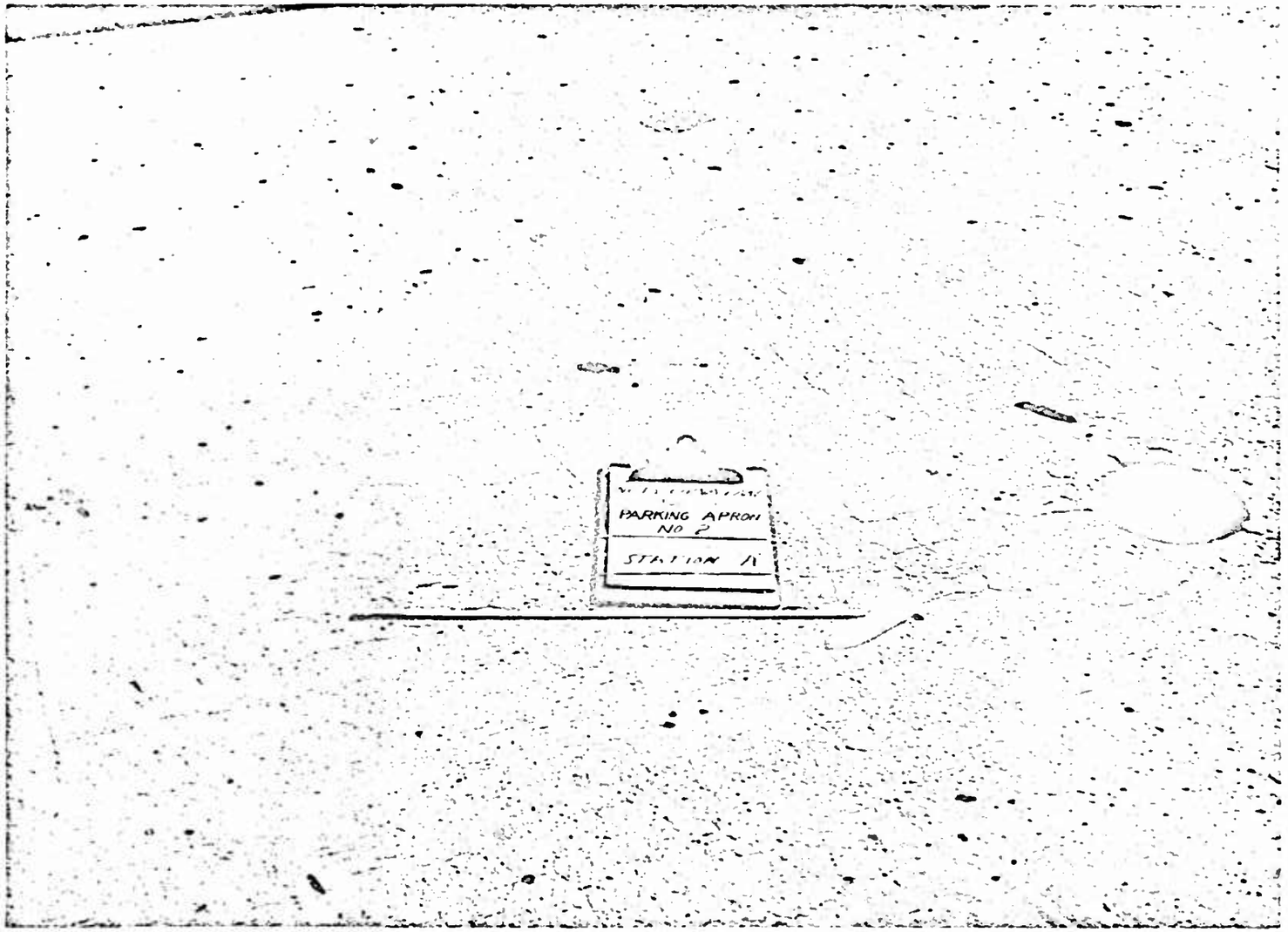
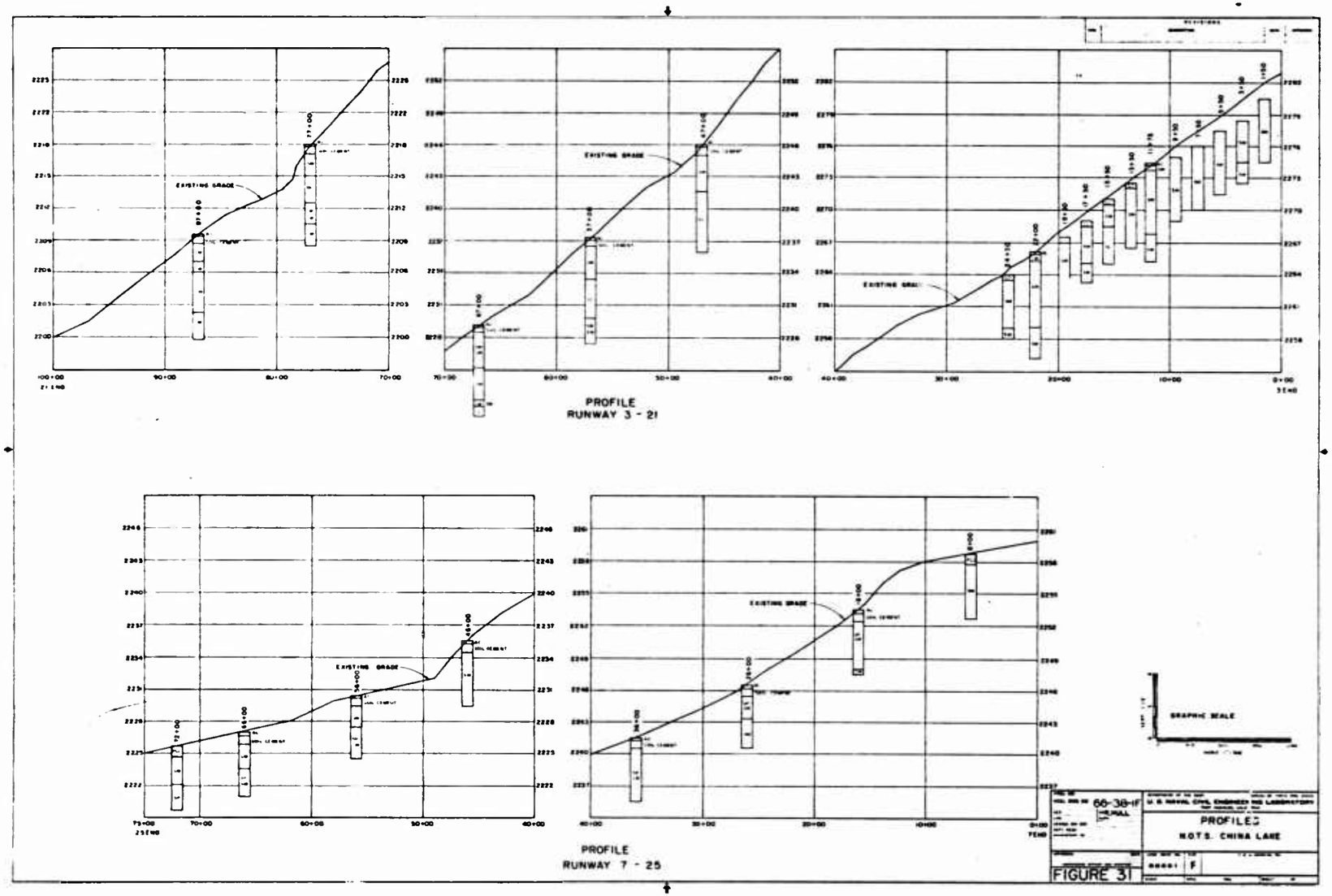
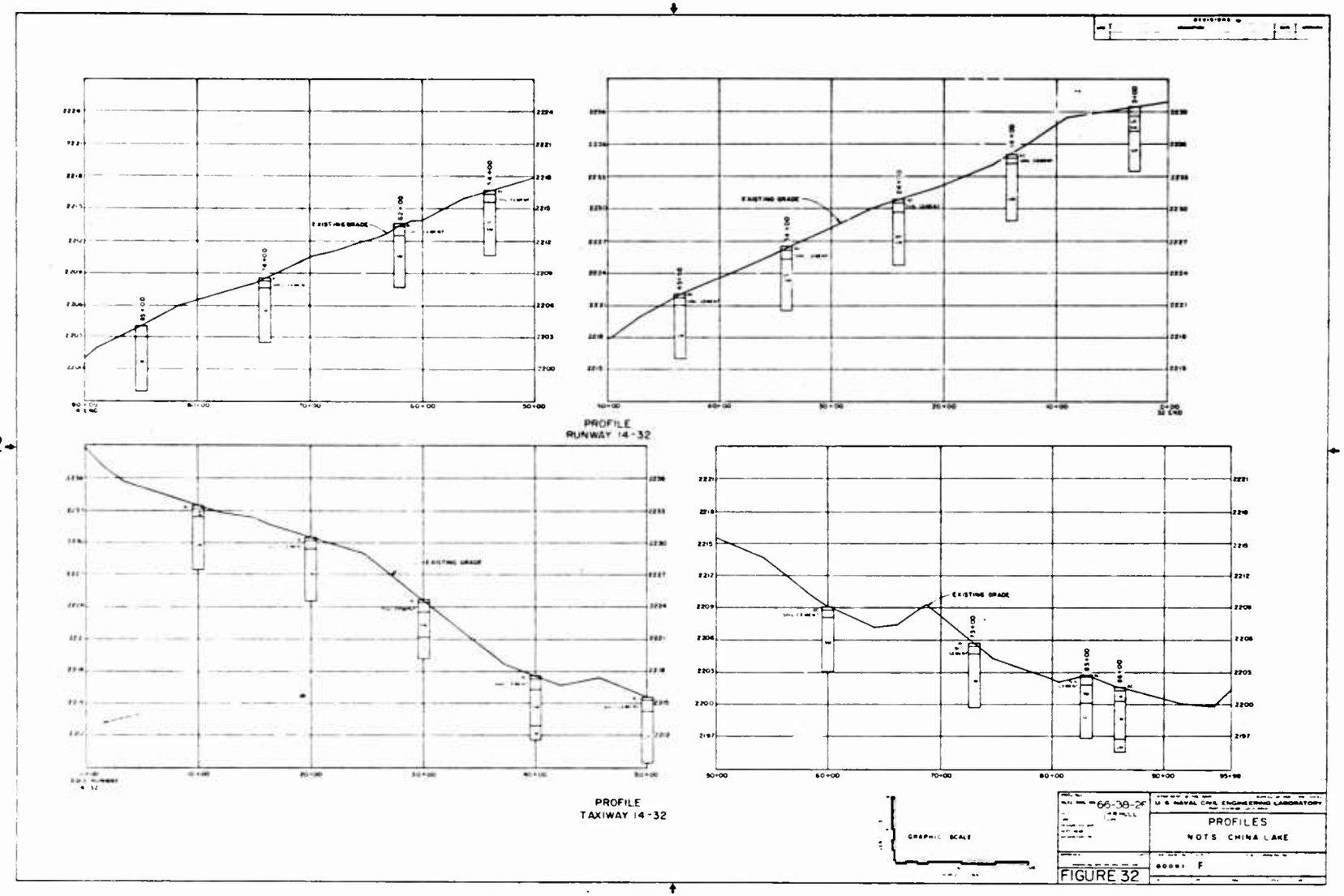
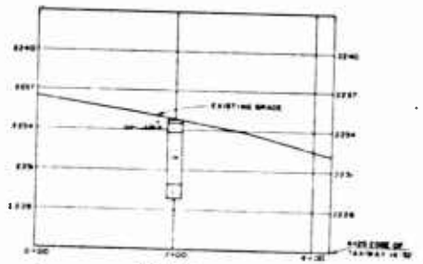


Figure 29. Surface crazing due to heat of jet blast on Parking Apron 2. U. S. Naval Air Facility, China Lake, California.

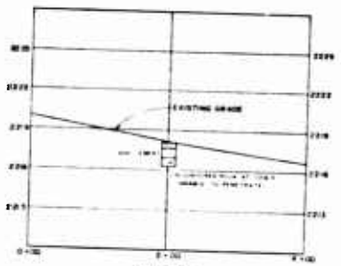
Figure 30. Joint repair and patch failure on section of Parking Apron 2. U. S. Naval Air Facility, China Lake, California.


EXISTING GRADE
PROFILE
RUNWAY 3 - 21
PROFILE
RUNWAY 7 - 25
GRAPHIC SCALE
66-38-1F
PROFILES
N.O.T.S. CHINA LAKE
FIGURE 31

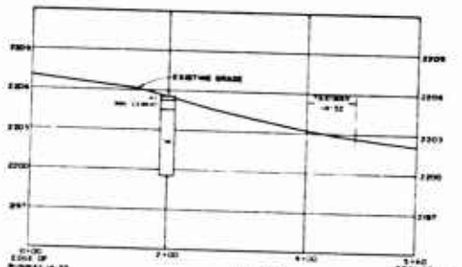

EXISTING GRADE
PROFILE
RUNWAY 14-32
EXISTING GRADE
PROFILE
TAXIWAY 14-32
GRAPHIC SCALE
68-38-2F
U S NAVAL CIVIL ENGINEERING LABORATORY
PROFILES
NOTS CHINA LAKE
60081 F
FIGURE 32



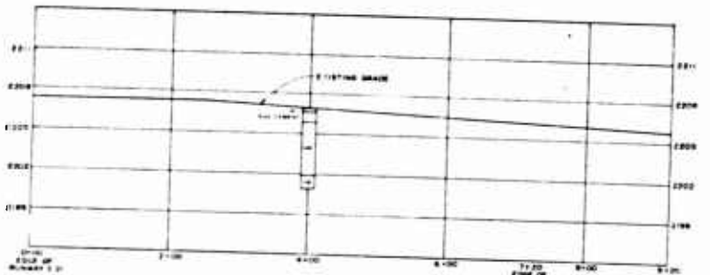
PROFILE
CONNECTING TAXIWAY "A"



PROFILE
CONNECTING TAXIWAY "B"



PROFILE
CONNECTING TAXIWAY "C"



PROFILE
CONNECTING TAXIWAY "D"

66-38-3F

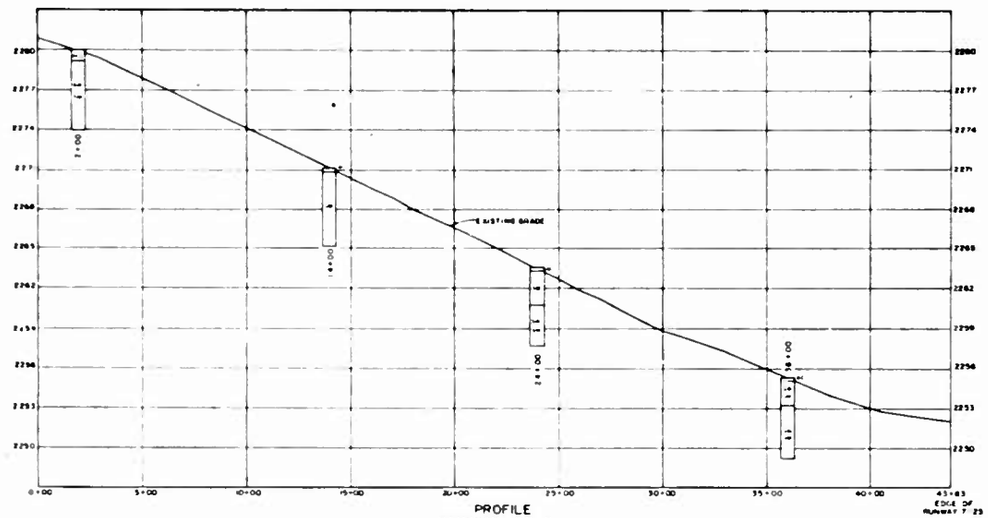
U.S. NAVAL CIVIL ENGINEERING LABORATORY

PROFILES

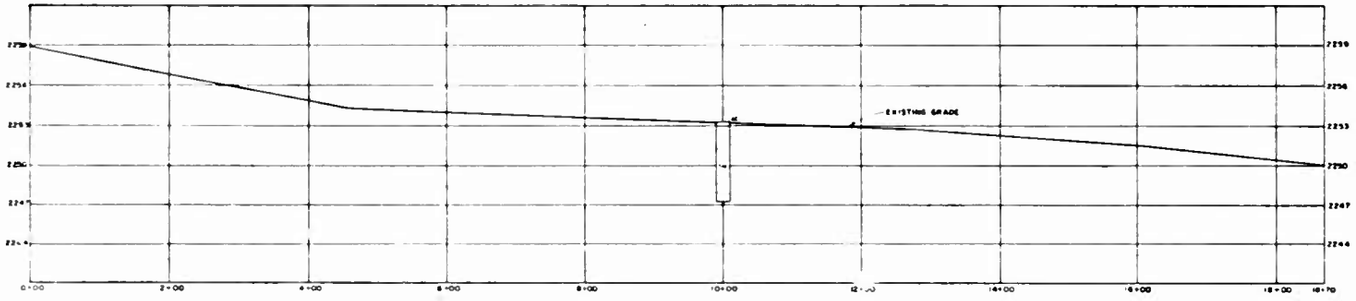
NOTS CHINA LAKE

SHEET F

FIGURE 33



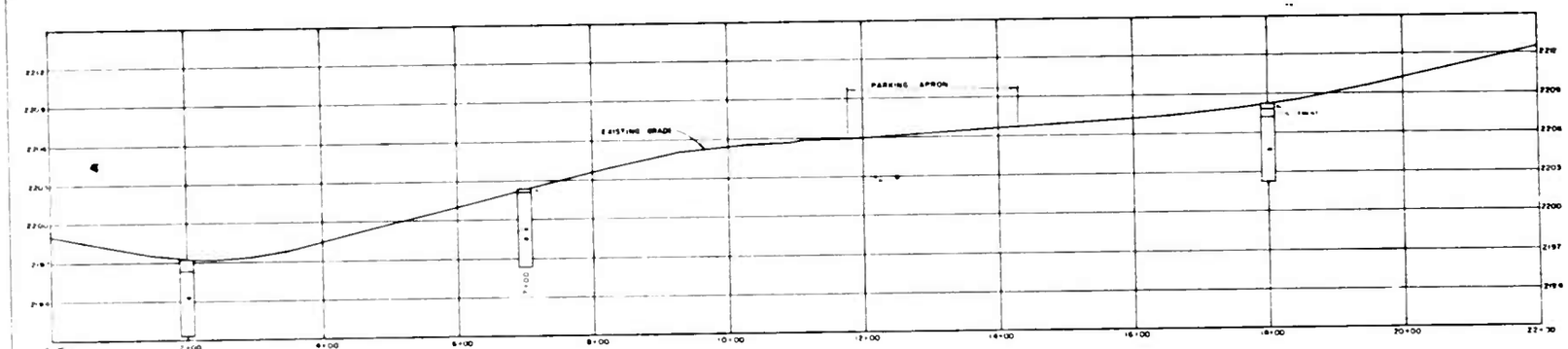
PROFILE
TAXIWAY NO 3



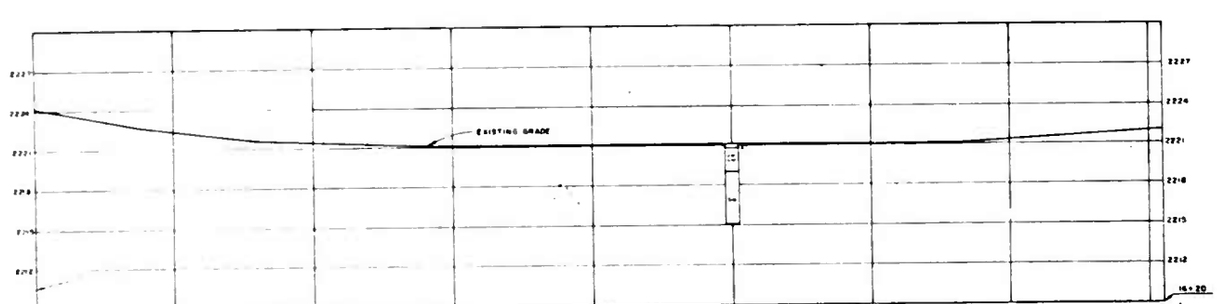
PROFILE
TAXIWAY NO 7

66-38-CF	U.S. NAVAL CIVIL ENGINEERING LABORATORY
	PROFILES
	NOTS CHINA LAKE
	60091 F

FIGURE 34



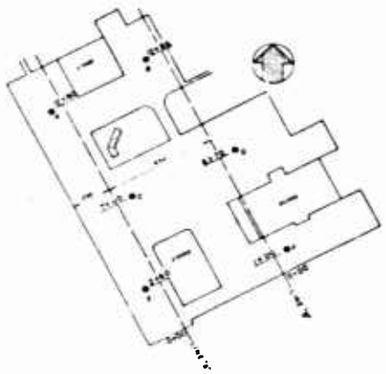
PROFILE
TAXIWAY NO 21



PROFILE
TAXIWAY NO 25

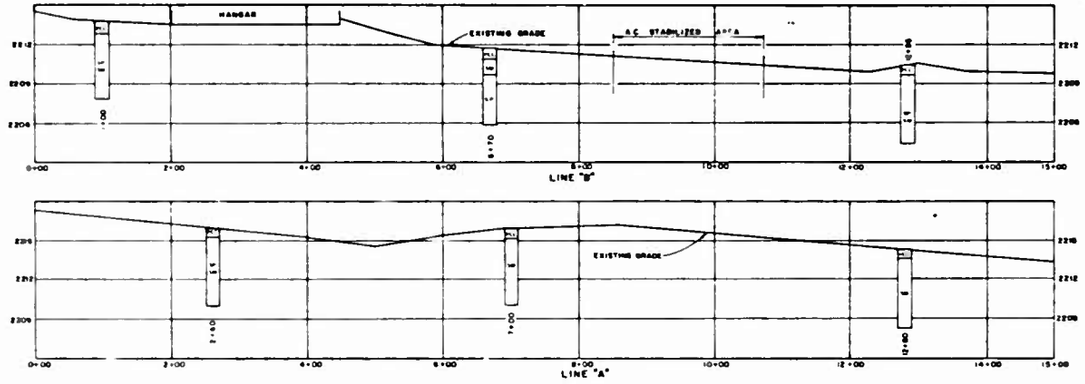
	66-38-5F	U. S. NAVAL CIVIL ENGINEERING LABORATORY
		PROFILES
FIGURE 35		NOTS CHINA LAKE

87

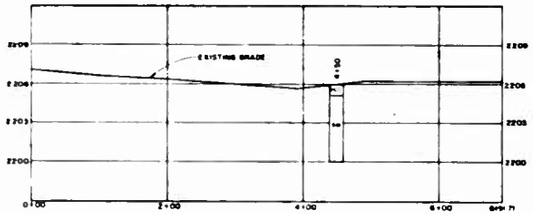


PARKING APRON NO 1

SCALE 1"=200'



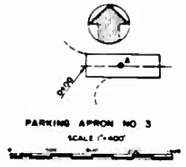
PROFILES
PARKING APRON NO 1



PROFILE
PARKING APRON NO 2

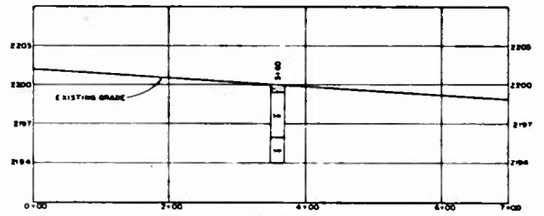
PARKING APRON NO 2

SCALE 1"=400'



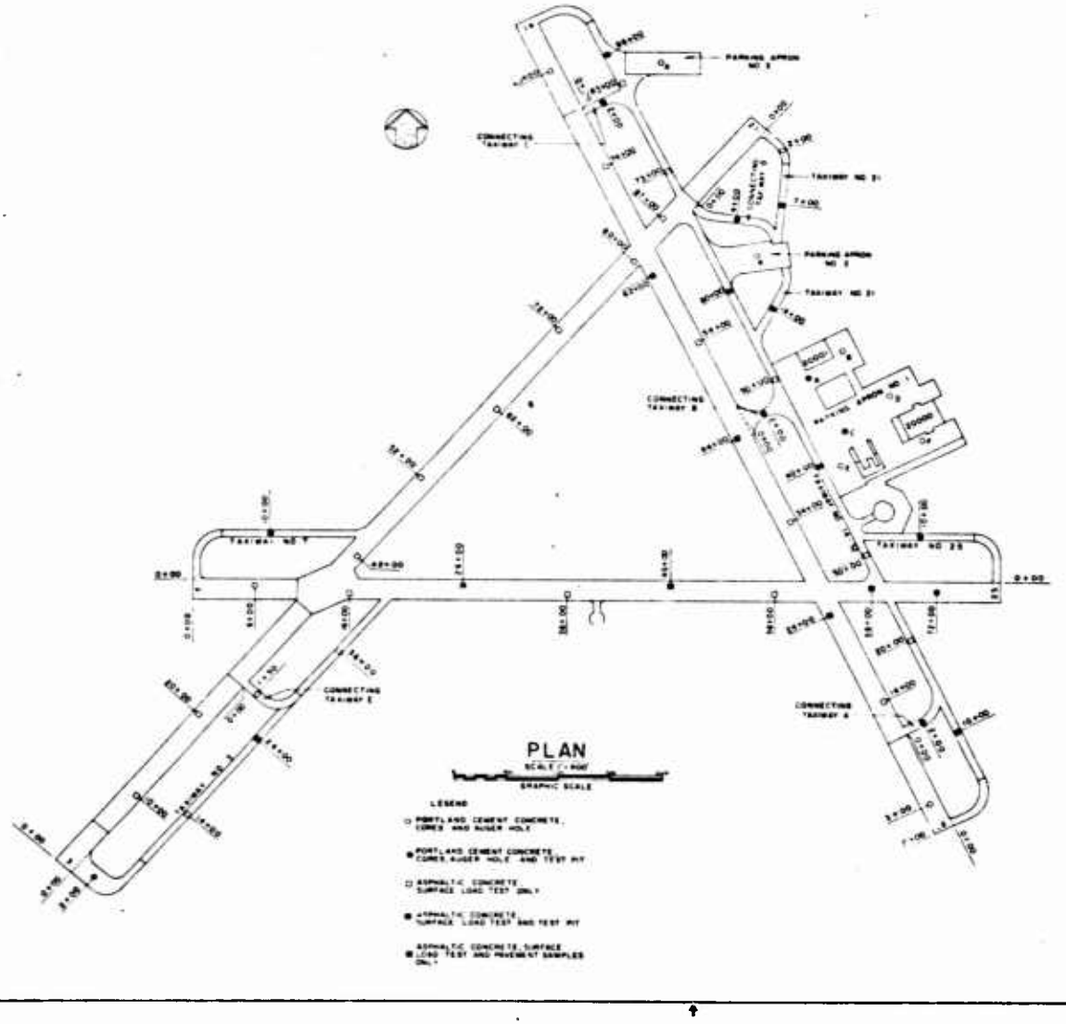
PARKING APRON NO 3

SCALE 1"=400'



PROFILE
PARKING APRON NO. 3

NAVAL SHIPS NO 66-38-6F	U.S. NAVAL CIVIL ENGINEERING LABORATORY
	PROFILES
	NOTS CHINA LAKE
FIGURE 36	DRAWING F


PLAN
SCALE 1" = 400'
GRAPHIC SCALE
LEGEND
PORTLAND CEMENT CONCRETE CORES AND AUGER HOLE
PORTLAND CEMENT CONCRETE CORES, AUGER HOLE AND TEST PIT
ASPHALTIC CONCRETE SURFACE LOAD TEST ONLY
ASPHALTIC CONCRETE SURFACE LOAD TEST AND TEST PIT
ASPHALTIC CONCRETE SURFACE LOAD TEST AND PAVEMENT SAMPLES ONLY
CONNECTING TAXIWAY 1
CONNECTING TAXIWAY 2
CONNECTING TAXIWAY 3
CONNECTING TAXIWAY 4
TAXIWAY NO 1
TAXIWAY NO 2
TAXIWAY NO 3
TAXIWAY NO 4
TAXIWAY NO 5
TAXIWAY NO 6
PARKING APRON NO 1
PARKING APRON NO 2
PARKING APRON NO 3
RUNWAY
66-38-7F
U S NAVAL CIVIL ENGINEERING LABORATORY
PAVEMENT EVALUATION
TEST LOCATIONS
NOTS CHINA LAKE, CALIF
FIGURE 37

Appendix A

CONSTRUCTION HISTORY FOR USNAF CHINA LAKE, CALIFORNIA

Appendix A

CONSTRUCTION HISTORY FOR USNAF CHINA LAKE, CALIFORNIA

Item No.	Section From Surface to Subgrade	Date Constructed	Date Strengthened
1	Runway 14-32		
	Slurry seal		1961
	Cracks filled		1959
	Slurry seal		1957
	Cracks filled and surface sealed		1953
	Surface sealed		1948
	2-1/2" asphaltic concrete	1944	
	8" soil cement	1944	
1a	Joints sealed with SS-S-167b		1961
	Concrete repairs - two types:		1961
	(1) Epoxy-Resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	Joints sealed with flintseal		1948
	11" portland cement concrete	1945	
	Shoulders - 150' wide		
	Penetration oil treatment, west shoulder		1953
	Asphalt emulsion seal, east shoulder other than those sealed in 1951		1953
	Asphalt emulsion seal, east shoulders north of catapult and arresting gear		1951
	Penetration asphalt treatment		1948
	Asphalt penetration	1945	
1b	Taxiway 14-32		
	Slurry seal		1961
	Cracks filled		1959
	Slurry seal		1957
	Surface seal		1948
	3" asphaltic concrete	1945	
	12" base	1945	

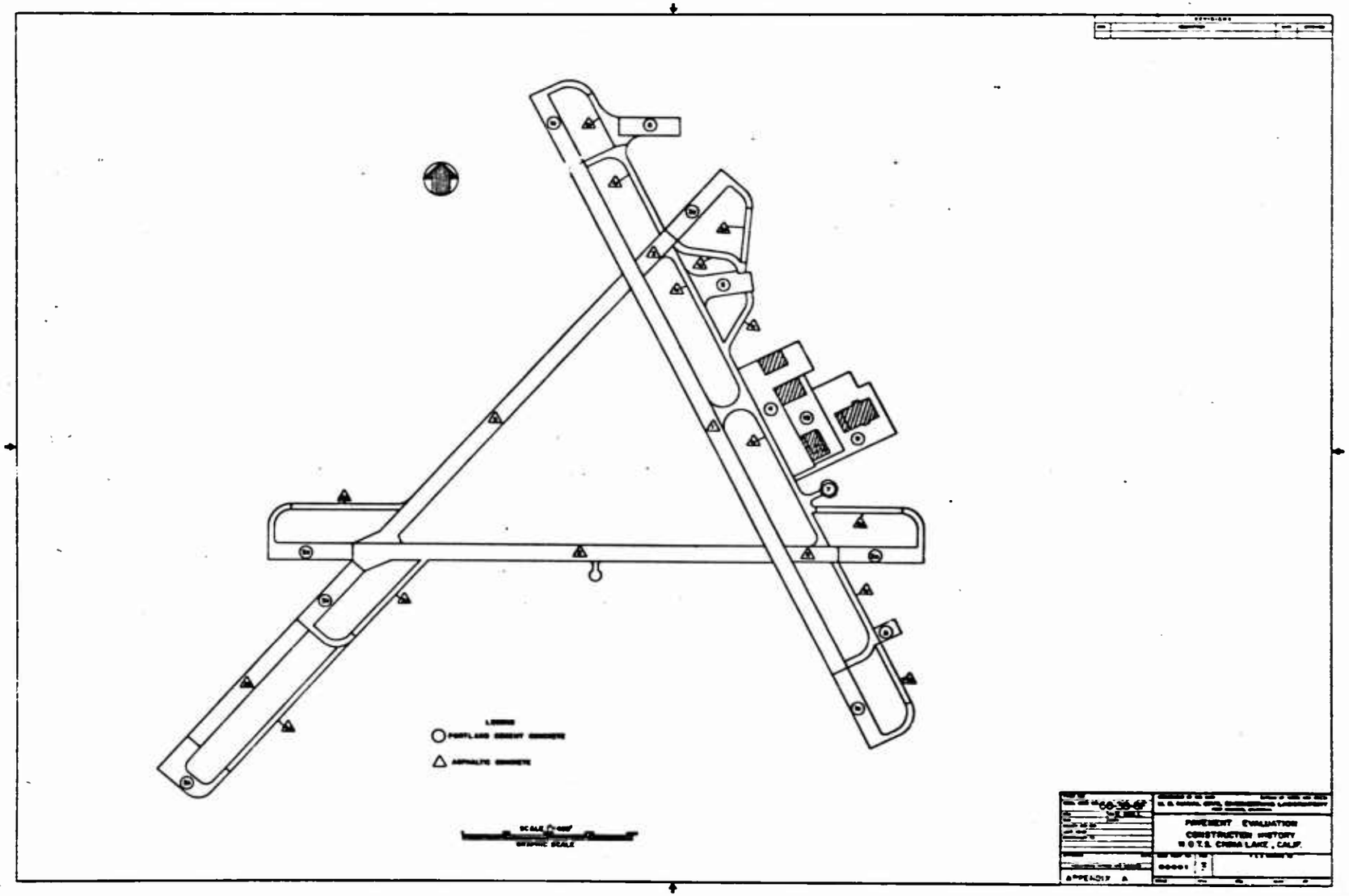
Item No.	Section From Surface to Subgrade	Date Constructed	Date Strengthened
	Taxiway 14-32 (cont'd)		
1a	Slurry seal		1961
	Cracks filled		1959
	Slurry seal		1957
	Surface seal		1948
	2-1/2" asphaltic concrete	1944	
	8" soil cement	1944	
	Shoulders - 25' wide		
	Penetration oil treatment		1953 and 1948
	1-1/2" emulsion stabilization	1945	
	Runway 7-25		
2	Slurry seal		1961
	Cracks filled		1959
	Slurry seal		1957
	Cracks filled and surface sealed		1953
	Surface sealed		1948
	2-1/2" asphaltic concrete	1944	
	8" soil cement	1944	
2a	Joints sealed with SS-S-167b		1961
	Concrete repairs - two types:		1961
	(1) Epoxy-resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	Joints sealed with flintseal		1948
	11" portland cement concrete	1945	
	Shoulders		
	Penetration oil treatment		1955
	Penetration asphalt treatment		1948
	Asphalt penetration	1945	
	Taxiway 7-25		
2b	Slurry seal		1961
	Cracks filled		1959
	Slurry seal, east end only		1957
	Surface seal		1948
	3" asphaltic concrete	1945	
	12" base	1945	

Item No.	Section From Surface to Subgrade	Date Constructed	Date Strengthened
	Taxiway 7-25 (cont'd)		
	Shoulders		
	4" asphaltic emulsion, outside shoulder of taxiway, east end only		1955
	Penetration oil treatment		1955
	Penetration oil treatment		1948
	1-1/2" emulsion stabilization	1945	
	Runway 3-21		
3	Slurry seal		1961
	Cracks filled		1959
	Slurry seal		1957
	Cracks filled and slurry seal		1953
	Surface seal		1948
	2-1/2" asphaltic concrete	1944	
	8" soil cement	1944	
3a	Joints sealed with SS-S-167b		1961
	Concrete repairs - two types:		1961
	(1) Epoxy-resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	Joints sealed with flintseal		1948
	11" portland cement concrete	1945	
3b	Slurry seal		1961
	Slurry seal		1957
	3" asphaltic concrete	1952	
	6" base	1952	
	12" compacted native material	1952	
3c	Joints sealed with SS-S-167b		1961
	Concrete repairs - two types:		1961
	(1) Epoxy-resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	10" portland cement concrete	1952	
	12" compacted native material	1952	

Item No.	Section From Surface to Subgrade	Date Constructed	Date Strengthened
	Runway 3-21 (cont'd)		
	Shoulders - 150' wide, (3), (3a)		
	Penetration oil treatment		1958
	Penetration oil treatment, excluding northeast end and extension		1955
	Penetration oil treatment, northeast end only		1953
	Penetration oil treatment		1948
	Asphalt penetration	1945	
	Shoulders - 25' wide, (3b), (3c)		
	Penetration oil treatment		1958
	4" emulsion stabilized surface	1952	
	6" compacted native material	1952	
(3d)	Taxiway 3-21		
	Slurry seal		1961
	Slurry seal		1957
	3" asphaltic concrete	1952	
	6" base	1952	
	12" compacted native material	1952	
(3e)	Slurry seal		1961
	Cracks filled		1959
	Slurry seal		1957
	Surface seal		1948
	3" asphaltic concrete	1945	
	12" base	1945	
	Shoulders		
	Penetration oil treatment, southwest taxiways only including extension		1958
	Penetration oil treatment, southwest taxiways only excluding extension		1955
	Penetration oil treatment, northeast taxiways only		1953
	Penetration oil treatment		1948
	1-1/2" emulsion stabilization	1945	

Item No.	Section From Surface to Subgrade	Date Constructed	Date Strengthened
	Parking Apron 1		
(4)	Joints sealed with SS-S-167b		1961
and	Concrete repairs - two types:		1961
(10)	(1) Epoxy-resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	Joints sealed with flintseal		1948
	9" portland cement concrete	1944	
(9)	(Including floor of Hangar 3)		
	10" portland cement concrete, 13" thickened edge	1957	
	12" base, compacted select native material	1957	
	6" subbase, compacted native material	1957	
	Parking Apron 2		
(5)	Joints sealed with SS-S-167b		1961
	Concrete repairs - two types:		1961
	(1) Epoxy-resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	Joints sealed with flintseal		1948
	9" portland cement concrete	1944	
	Parking Apron 3		
(6)	Joints sealed with SS-S-167b		1961
	Concrete repairs - two types:		1961
	(1) Epoxy-resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	Joints sealed with flintseal		1948
	9" portland cement concrete	1944	

Item No.	Section From Surface to Subgrade	Date Constructed	Date Strengthened
	Compass Rose and Warm-Up Apron		
⑦	Joints sealed with SS-S-167b		1961
and	Concrete repairs - two types:		1961
⑧	(1) Epoxy-resin alloy, with or without pea gravel filler		
	(2) Non-shrink concrete, with epoxy-resin alloy bonding agent		
	Joints sealed with flintseal		1948
	9" portland cement concrete	1944	


PAVEMENT EVALUATION
CONSTRUCTION HISTORY
U.S. CHINA LAKE, CALIF.
APPENDIX A

Appendix B

CLIMATOLOGICAL DATA FOR USNAF CHINA LAKE, CALIFORNIA

Appendix B

CLIMATOLOGICAL DATA FOR USNAF CHINA LAKE, CALIFORNIA

Average Temperatures

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	An'l.
1954	45.0	53.1	51.3	61.6	76.8	79.6	89.0	82.6	77.7	66.5	54.5	41.3	65.5
1955	39.6	43.0	54.3	58.9	69.0	79.0	85.0	88.2	79.6	68.2	51.9	47.9	63.7
1956	47.2	45.5	55.6	61.0	71.0	82.8	85.0	82.5	80.8	63.2	49.2	43.0	63.9
1957	40.5	55.0	58.2	63.0	68.2	84.0	91.0	84.0	78.0	62.0	48.7	43.7	64.7
1958	45.9	52.0	51.1	61.8	75.0	80.0	87.0	89.0	79.5	70.0	52.0	45.0	65.7
1959	46.0	57.0	60.0	69.4	70.4	84.0	92.0	84.0	71.4	68.5	53.4	46.7	67.4
1960	40.3	46.5	58.8	63.3	69.8	84.2	86.7	84.1	78.5	64.0	50.3	43.1	64.1
1961	42.4	48.9	54.0	63.1	68.0	83.6	88.0	83.6	73.0	63.2	49.1	43.8	63.4
1962	40.7	46.8	50.4	66.7	66.7	78.3	82.8	82.8	76.1	66.4	53.9	42.0	62.9
1963	39.3	55.4	52.0	56.3	71.6	74.5	82.7	82.7	78.1	68.9	54.5	42.0	63.2
1964	42.5	46.0	51.3	60.1	67.4	76.0	84.5	84.3	75.6	71.0	49.1	47.2	62.9
MAX.	77	82	86	97	107	114	113	110	110	102	88	86	114
MIN.	0	14	22	28	35	42	52	53	40	32	18	2	0

Total Precipitation

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	An'l.
1954	1.41	0.40	0.45	--	0.02	--	0.05	T	0.41	--	0.76	0.57	4.07
1955	0.48	T	--	0.01	T	--	--	--	--	--	0.05	0.02	0.56
1956	0.71	T	--	0.94	0.01	--	T	--	--	0.07	--	--	1.73
1957	1.00	0.41	0.02	0.01	0.06	0.03	T	0	0.05	0.03	0.16	0.91	2.68
1958	0.38	1.53	0.65	0.58	T	--	T	0.01	0.15	0.40	T	0.91	3.70
1959	0.50	0.84	0.65	T	0.03	--	--	T	0.70	T	0.14	0.77	2.98
1960	0.47	0.91	T	0.04	--	0.29	0.05	--	0.29	T	0.93	0.03	3.01
1961	0.35	T	T	T	--	--	--	0.55	T	0.11	0.99	0.46	1.80
1962	0.75	1.46	0.10	--	T	--	T	T	T	T	T	T	2.31
1963	0.14	1.02	0.20	T	--	0.02	--	0.71	2.14	0.81	0.41	T	5.45
1964	0.12	T	0.03	T	T	--	0.12	0.04	0.01	0.15	0.20	0.11	0.78
10-YR AVG.	.57	.59	.19	.14	.01	.03	.02	.12	.34	.14	.33	.34	2.64

T = Trace (less than .01)

Appendix C

VISUAL PAVEMENT CONDITION SURVEY

Appendix C

VISUAL PAVEMENT CONDITION SURVEY

Pavement Facility	Type	Stationing	Condition
Runway 14-32	Portland cement concrete	0+00--10+00	Excellent--minor patches along spalled construction joints. Some surface defects and spalling in one area. Joint seals in good condition. See Figures 2 and 3.
	Asphaltic concrete	10+00--80+00	Poor--general deterioration, severe longitudinal and transverse cracking, areas of alligator pattern cracking with spalling; rutting and birdbaths. See Figures 4, 5, 6, and 7.
	Portland cement concrete	80+00--90+00	Excellent--minor spalling along longitudinal and transverse joints. Patch at one joint intersection. Several minor tailhook scratches. Joint sealer in good condition. No embedded pebbles noted in this section.
Runway 3-21	Portland cement concrete	0+00--5+00	Excellent--minor popouts and joint seal deficient in places, open to 1/8 inch. Joints well sealed with no embedded pebbles.
	Asphaltic concrete	5+00--25+00	Poor--severe longitudinal and transverse cracks open to 3/4 inch. Occasional areas of rutting and chicken wire (3-inch pattern) cracks. Major cracks partially sealed. See Figures 8 and 9.
	Portland cement concrete	25+00--35+00	Excellent--occasional rough surface finish. Moderate distribution of drying shrinkage hair cracks. Patching along joints in good condition. Few joints deficient in sealer, but no embedded pebbles.

	Asphaltic concrete	35+00--91+00	Poor--severe longitudinal and transverse cracking open to 5/8 inch, partially sealed. Raveling along open cracks very severe in several locations. Longitudinal crack pattern follows old construction joints. Open-stripped surface and rutting noted at Station 81+50. Spalled transverse cracks unsuccessfully repaired with portland cement concrete. Alligator and map cracking, hook scratches, and rutting interlace the major crack patterns. See Figures 10 through 14.
	Portland cement concrete	91+00--100+00	Excellent--with exception of some surface popouts and several joint intersection patches which bridge both the longitudinal and transverse joint. Joints well sealed with no embedded pebbles.
Runway 7-25	Portland cement concrete	0+00--10+00	Excellent--some spalling along construction joints covered with seal. Occasional corner break also well sealed. No pebbles in joint seals
	Asphaltic concrete	10+00--67+00	Poor--partially sealed longitudinal and transverse cracks open to 3/8 inch. Major cracks interlaced with corner failures and chicken wire (3-inch pattern) cracks. See Figures 4, 5, and 9. Shallow rutting in several areas.
	Portland cement concrete	67+00--77+00	Excellent--some minor spalling along joints. Joints are well sealed, but one patch bridges construction joint. No pebbles in joint seal.
Taxiway 14-32	Portland cement concrete	0+00--5+75	Good--transverse joints uneven and starting to spall. Minor surface popouts. Minor spalling along longitudinal joints. Joint sealer in moderately poor condition with some embedded pebbles.

Pavement Facility	Type	Stationing	Condition
Taxiway 14-32 (Cont'd)	Asphaltic concrete	5+75--14+00	Poor--severe longitudinal and transverse cracking open to 1/2 inch, and edges of many cracks are starting to ravel. Transverse rolling and longitudinal troughs make surface very uneven. Many birdbath areas. Oil spillage has softened one area. Settlement was noticeable in vicinity of Station 10+00. No recent maintenance was in evidence. Map and random crack patterns open to 1/8 inch interlace the severe 6-foot-square patterns.
	Asphaltic concrete	14+00--65+00	Poor--severe longitudinal and transverse cracks open to 3/4-inch form 5- to 8-foot squares interlaced with random cracks open to 1/8 inch. At many crack intersections, the corners show severe cracks on a 3-inch pattern. Minor rutting. See Figures 15, 16, and 17.
	Asphaltic concrete	65+00--90+50	Very poor--severe longitudinal and transverse cracking open to 3/4 inch interlaced with random crack patterns open to 1/2 inch. Moderate rutting. Surface rolling and rough. Station 89+00--90+00 have severe transverse cracks open 2-1/2 to 5 inches occurring at 25-foot intervals with lesser crack pattern over balance of surface.
	Portland cement concrete	90+50--96+00	Good--minor surface popouts and moderately severe longitudinal and transverse joint spalling. Joint seal in fair condition.
Taxiway 3	Portland cement concrete	0+00--7+70	Good--moderate spalling along longitudinal and transverse joints. Moderate amount of pebbles embedded in joint seal. Joints deficient in seal in some areas and sealer in only fair condition in places.

			(Cont'd) Occasional small corner break. Some cracking parallel to transverse joints. Occasional joint spalling to 5-inch width. Only repairs in evidence is resealing of joints to cover spalled areas. Minor surface popouts. See Figure 18.
	Asphaltic concrete	7+70--30+50	Fair to good--moderate longitudinal and transverse cracks to 1/4 inch. Map cracking along centerline. Minor rutting. Moderate number of birdbath areas. See Figure 19.
	Asphaltic concrete	30+50--43+50	Poor to fair--severe longitudinal and transverse cracks open to 1/2 inch with spalling along major cracks. Moderate raveling paralleling longitudinal cracks. Minor rutting. Moderate map cracking. Major longitudinal cracks follow construction joints. Some evidence of birdbath areas. No repair. Surface somewhat open.
Taxiway 7	Portland cement concrete	0+00--5+75	Good--moderate spalling along longitudinal and transverse joints. Minor popouts. All joints very well sealed with no pebbles embedded in seal. Several spalled areas covered with liquid joint sealer. Most transverse contraction joints have an irregular appearance as opposed to a straight-sawed joint.
	Asphaltic concrete	5+75--18+75	Poor--severe longitudinal and transverse cracks open to 1 inch and spalling. Minor rutting. Occasional birdbath depressions. Moderate random cracking open to 1/4 inch within the larger patterns. Map cracking along centerline area. No repairs in evidence.

Pavement Facility	Type	Stationing	Condition
Taxiway 21	Portland cement concrete	0+00--3+75	Good--moderate spalling along longitudinal and transverse joints. Some spalled areas sealed with mastic. Joint seals in fair condition, but joints open in some areas. No pebbles embedded in joint seal. Minor surface popouts. Some spalled areas moderately well patched with portland cement and sand and/or with epoxy.
	Asphaltic concrete	3+75--10+50	Fair--moderate map and random (shrinkage) cracks open to 1/4 inch. Some rutting. Occasional birdbath settlement area.
	Asphaltic concrete	10+50--11+75	Poor--severe longitudinal and transverse cracks open to 2-1/2 inches with additional raveling and breakdown along major longitudinal cracks. Moderate map cracking. Birdbath areas in moderate frequency.
	Portland cement concrete	11+75--14+00	Area is Parking Apron 2.
	Asphaltic concrete	14+00--22+00	Poor--severe longitudinal and transverse cracks open to 1-1/2 inches with additional raveling and breakdown along the wider cracks. Moderate map cracking. Minor rutting. Occasional birdbath areas.
Taxiway 25	Portland cement concrete	0+00--5+75	Excellent--minor longitudinal and transverse joint spalling. Moderate shrinkage cracks in one area. Minor surface blemishes and popouts. Joint seal in good condition with very little embedded gravel. Severe settlement of asphaltic concrete at transition. See Figure 22.

	Asphaltic concrete	5+75--16+20	Poor--severe map cracking of entire area. Major longitudinal and transverse cracks on approximately 20-foot centers. Very little repair in evidence. Some birdbath areas adjacent to centerline. See Figure 23.
Connecting Taxiway A	Asphaltic concrete	0+00--4+40	Very poor--severe longitudinal and transverse cracks open to 3/4 inch. Additional crack patterns are paralleling the large cracks, and severe corner breaks are occurring at many crack intersections. A 3-inch pattern of cracks interlaces the intermediate-size pattern. See Figure 24.
Connecting Taxiway B	Asphaltic concrete	0+00--4+00	Poor--severe longitudinal and transverse cracks open to 3/4 inch. Random crack patterns open to 1/8 inch interlace the larger pattern. Crack intersections show severe corner failures.
Connecting Taxiway C	Asphaltic concrete	0+00--4+00	Poor--severe longitudinal and transverse cracks to 1 inch. Weeds growing up through cracks. Attempt to seal cracks shows little benefit. Cracks to 1/2 inch interlace the larger pattern.
Connecting Taxiway D	Asphaltic concrete	0+00--8+15	Poor--severe longitudinal and transverse cracks to 3-1/2 inches wide. Additional breakdown occurs paralleling major cracks. Corner breaks and raveling occurs at crack intersections. Attempts to seal cracks evidence little success.
Connecting Taxiway E	Portland cement concrete	0+00--2+50	Excellent--minor spalling along longitudinal and transverse joints. Considerable amount of pebbles in joint seal. Minor surface popouts. Some spalled

Pavement Facility	Type	Stationing	Condition
Connecting Taxiway E (Cont'd)	Portland cement concrete	0+00--2+50 (Cont'd)	joints covered with mastic. Small areas of spalled joints not repaired. Joint seal deficient in places.
	Asphaltic concrete	2+50--4+40	Fair--moderate map cracking to 1/4 inch and random cracks to 1/4 inch. Transition between asphaltic concrete and concrete pavement very poor. Minor rutting. Minor hair cracks over most of area.
Parking Apron 1	Portland cement concrete	A	Fair--fine map cracking entire area. Considerable patching along joints. Moderate transverse cracking. Some spalling along joints, some surface popouts, gravel embedded in expansion joints.
	Portland cement concrete	B	Fair to good--fine to moderate map or chicken wire surface crazing over most of area. Severe joint failure at one location. Gravel embedded in expansion joints. See Figure 25.
	Portland cement concrete	C	Fair to good--fine to moderate map or chicken wire surface crazing. Severe longitudinal cracking in some areas. Considerable spalling along joints. Some patching along joints. Some joints without adequate seal. See Figure 26.
	Portland cement concrete	D	Good to excellent--minor transverse and longitudinal cracks. Some spalling along construction joints. Minor surface crazing barely visible. Joint seals moderately poor with considerable embedded gravel. See Figure 27.
	Portland cement concrete	E	Fair to good--considerable crazing from jet blasts. Transverse cracks to 1/8 inch in limited number of slabs and shrinkage cracks. Corner failure poorly

			(Cont'd) repaired in several slabs. Embedded gravel in construction joints. See Figure 28.
	Portland cement concrete	F	Excellent--minor repairs.
Parking Apron 2	Portland cement concrete	A	Fair to good--moderate to major spalling along longitudinal and transverse joints. Spalling in some areas over 6 inches wide along joints. Spalled areas repaired with sealing compounds, portland cement mixes, and epoxy. Most of joints full of embedded pebbles. Most of area shows crazing or chicken wire pattern. Minor popouts. Some areas of Parking Apron 2 in good condition with well-sealed joints free of embedded pebbles. See Figures 29 and 30.
Parking Apron 3	Portland cement concrete	A	Fair to good--severe spalling at two previously patched joint failures. Other spalled joint areas successfully repaired. Some surface crazing from jet blasts. Minor surface popouts. Some joints have had seal removed by jet blasts and in need of repair. Joints are extremely wide with many large pebbles embedded in them. This pad appears to be used very little.

VISUAL PAVEMENT CONDITION SURVEY OF PORTLAND CEMENT CONCRETE PAVEMENTS,
USNAF CHINA LAKE, CALIFORNIA

Feature	Slab Size (ft)	Approx Number of Slabs	Pavement Thickness (in.)	Number of Slabs Containing Indicated Defects*														Percent of Slabs No Defects	Percent of Slabs** No Major Defects	Condition**
				|	–	\	Δ	*	≈	S	⊤	⌟	⌟	⊕	M	P	O	C			
Runway 14-32																				
0+00--10+00	15 x 12.5	1,067	11.0				40				40	10							80	90	Excellent
80+00--90+00	15 x 12.5	1,067	11.0				35				30	5	5						90	95	Excellent
Runway 3-21																				
0+00--5+00	15 x 12.5	533	10.5				5				5	2							95	98	Excellent
25+00--35+00	15 x 12.5	1,067	11.0				8				12	4							90	94	Excellent
90+00--100+00	15 x 12.5	1,067	11.0				6				8	2							90	94	Excellent

LEGEND:
|	Longitudinal Crack	≈	Shrinkage Crack	⊕	Settlement
–	Transverse Crack	S	Scaling	M	Map Cracking
\	Diagonal Crack	⊤	Spall on Transverse Joint	P	Pumping Joint
Δ	Corner Break	⌟	Spall on Longitudinal Joint	O	Popout
*	Shattered Slab	⌟	Corner Spall	C	Uncontrolled Contraction Crack

REMARKS: * Determined by observation of condition of entire area and a count of defects in selected average areas.
** 50 and below, poor; 51 to 65, fair; 66 to 85, good; 86 to 100, excellent.

NOTE: Runway 14-32 200 feet wide. Few joints show incipient spalling covered by sealer.

VISUAL PAVEMENT CONDITION SURVEY OF PORTLAND CEMENT CONCRETE PAVEMENTS,
USNAF CHINA LAKE, CALIFORNIA

Feature	Slab Size (ft)	Approx Number of Slabs	Pavement Thickness (in.)	Number of Slabs Containing Indicated Defects*															Percent of Slabs No Defects	Percent of Slabs** No Major Defects	Condition**
				|	—	\	Δ	*	~	S	J	J	J	⊕	M	P	O	C			
Runway 7-25																					
0+00--10+00	15 x 12.5	1,066	11.0				5				5								94	98	Excellent
67+00--77+00	15 x 12.5	1,172	11.5								5								96	99	Excellent
Taxiway 14-32																					
0+00--5+75	14 x 12.5	246	11.0								45	17							75	83	Good
90+50--96+00	12.5x 12.5	264	11.0								44	22							75	83	Good
Taxiway3																					
0+00--4+00	15 x 12.5	432	Rein. 10.5				25				20	30	30						75	84	Good
4+00--7+70	15 x 12.5	320	10.5				30				15	35	25						75	84	Good

LEGEND:

|	Longitudinal Crack	~	Shrinkage Crack	⊕	Settlement
—	Transverse Crack	S	Scaling	M	Map Cracking
\	Diagonal Crack	J	Spall on Transverse Joint	P	Pumping Joint
Δ	Corner Break	J	Spall on Longitudinal Joint	O	Popout
*	Shattered Slab	J	Corner Spall	C	Uncontrolled Contraction Crack

REMARKS: * Determined by observation of condition of entire area and a count of defects in selected average areas.
** 50 and below, poor; 51 to 65, fair; 66 to 85, good; 86 to 100, excellent.

VISUAL PAVEMENT CONDITION SURVEY OF PORTLAND CEMENT CONCRETE PAVEMENTS, NAVAL AIR FACILITY, CHINA LAKE, CALIFORNIA

Feature	Slab Size (ft)	Approx Number of Slabs	Pavement Thickness (in.)	Number of Slabs Containing Indicated Defects *															Percent of Slabs No Defects	Percent of Slabs** No Major Defects	Condition**
				|	–	\	Δ	*	∿	S	⌐	⌐	⌐	⊕	M	P	O	C			
Taxiway 7 0+00--5+75	30 x 12.5	114	11.0								14	14							75	80	Good
Taxiway 21 0+00--3+75	17 x 12.5	132	11.0								20	23	5				5		60	83	Good
Taxiway 25 0+00--5+75	13 x 12.5 and 16 x 12.5	246	11.5						25		3	7					2		85	98	Excellent
Conn. Taxiway E 0+00--2+50	15 x 12.5	120	10.0				6				6	6	6				6		75	95	Excellent

LEGEND:

|	Longitudinal Crack	∿	Shrinkage Crack	⊕	Settlement
–	Transverse Crack	S	Scaling	M	Map Cracking
\	Diagonal Crack	⌐	Spall on Transverse Joint	P	Pumping Joint
Δ	Corner Break	⌐	Spall on Longitudinal Joint	O	Popout
*	Shattered Slab	⌐	Corner Spall	C	Uncontrolled Contraction Crack

REMARKS: * Determined by observation of condition of entire area and a count of defects in selected average areas.
** 50 and below, poor; 51 to 65, fair; 66 to 85, good; 86 to 100, excellent.

VISUAL PAVEMENT CONDITION SURVEY OF PORTLAND CEMENT CONCRETE PAVEMENTS,
USNAF CHINA LAKE, CALIFORNIA

Feature	Slab Size (ft)	Approx Number of Slabs	Pavement Thickness (in.)	Number of Slabs Containing Indicated Defects*															Percent of Slabs No Defects	Percent of Slabs No Major Defects	Condition
				|	–	\	Δ	*	≈	S	⊤	⌟	⌟	⊕	M	P	O	C			
Parking Apron 1																					
A	16 x 12.5	900	9.5	50	50		3		See M		25	25			890		58		0	70	Fair
B	15 x 12.5	373	9.0						See M		1				370		10		0	80	Fair to Good
C	20 x 10	750	10.0	200	15	3	3		See M		12	15			200		15		0	85	Fair to Excellent
D	14 x 12.5	1,343	10.0	2	2	1	1				10	12							85	98	Good to Excellent
E	16 x 12.5	625	9.5	10	10	8	5		See M	2	100	100	10		400		12	15	0	60	Fair to Good
F	15 x 12.5	853	10.0								1	1							85	98	Excellent

LEGEND:
|	Longitudinal Crack	≈	Shrinkage Crack	⊕	Settlement
–	Transverse Crack	S	Scaling	M	Map Cracking
\	Diagonal Crack	⊤	Spall on Transverse Joint	P	Pumping Joint
Δ	Corner Break	⌟	Spall on Longitudinal Joint	O	Popout
*	Shattered Slab	⌟	Corner Spall	C	Uncontrolled Contraction Crack

REMARKS:

VISUAL PAVEMENT CONDITION SURVEY OF PORTLAND CEMENT CONCRETE PAVEMENTS,
USNAF CHINA LAKE, CALIFORNIA

Feature	Slab Size (ft)	Approx Number of Slabs	Pavement Thickness (in.)	Number of Slabs Containing Indicated Defects															Percent of Slabs No Defects	Percent of Slabs No Major Defects	Condition
				|	–	\	Δ	*	≈	S	⊥	⌟	⌞	⊕	M	P	O	C			
Parking Apron 2																					
A	16 x 12.5	940	9.5								150	150					29		0	65	Fair
		74	9.5	Grazing of surface, entire area.															0	80	Good
Parking Apron 3																					
A	14 x 12.5	1,000	7.0	50	50						50	50	25				25		75	86	Good

LEGEND:

|	Longitudinal Crack	≈	Shrinkage Crack	⊕	Settlement
–	Transverse Crack	S	Scaling	M	Map Cracking
\	Diagonal Crack	⊥	Spall on Transverse Joint	P	Pumping Joint
Δ	Corner Break	⌟	Spall on Longitudinal Joint	O	Popout
*	Shattered Slab	⌞	Corner Spall	C	Uncontrolled Contraction Crack

REMARKS:

VISUAL PAVEMENT CONDITION SURVEY OF ASPHALTIC CONCRETE PAVEMENTS, USNAF CHINA LAKE, CALIFORNIA

Pavement Facility and Stationing	Various Types of Cracks										General Deficiencies								Overall Condition			
	Hair	Longitudinal	Transverse	Chicken Wire (~ 3" Pattern)	Alligator (~ 6" Pattern)	Map (~ 12" Pattern)	Reflection	0" to 1/8" Wide	1/8" to 1/4" Wide	Greater than 1/4"	Jet Blasts	Stripping	Raveling	Rutting	Skin Patches	Deep Patches	Localized Reconstruction	Oil Spillage	Poor	Fair	Good	Excellent
Runway 14-32																						
10+00--80+00	2	3	3	2	2	2	0	2	3	2	0	0	1	1	0	0	0	0				
Runway 3-21																						
5+00--25+00	0	3	3	2	2	2	0	2	3	2	1	0	1	2	1	0	0	1				
35+00--91+00	0	3	3	2	0	2	0	2	3	2	1	0	2	2	2	1	0	0				
Runway 7-25																						
10+00--12+00	0	3	3	2	0	2	0	2	2	3	1	2	1	1	0	0	0	0				
12+00--67+00	0	3	3	2	0	0	0	0	0	3	0	0	2	1	1	0	0	0				
Taxiway 14-32																						
5+75--14+00	0	4	4	2	2	2	0	4	4	1	0	0	1	4	2	2	0	1				
14+00--65+00	0	3	3	2	2	2	-	3	3	1	0	0	1	3	2	2	0	1				
65+00--90+50	0	4	4	2	2	2	0	4	4	1	0	0	1	4	2	2	0	1				
Taxiway 3																						
7+70--30+50	0	2	2	0	0	1	0	1	2	0	0	0	0	1	0	0	0	0				
30+50--43+50	1	4	4	1	1	2	0	2	2	2	0	0	2	1	0	0	0	0				
Taxiway 7																						
5+75--18+75	0	4	4	0	0	2	0	2	2	3	0	0	0	1	0	0	0	0				
Taxiway 21																						
3+75--10+50	0	1	1	0	1	2	2	0	0	0	0	0	1	1	0	0	0	0				

Degree of Failure: 0 - None; 1 - Minor; 2 - Moderate; 3 - Major; 4 - Severe.

VISUAL PAVEMENT CONDITION SURVEY OF ASPHALT SURFACES IN AREAS,
[illegible], [illegible]

Pavement Facility and Stationing	Various Types of Cracks										General Deficiencies								Overall Condition			
	Hair	Longitudinal	Transverse	Chicken Wire (~ 3" Pattern)	Alligator (~ 6" Pattern)	Map (~ 12" Pattern)	Reflection	0" to 1/8" Wide	1/8" to 1/4" Wide	Greater than 1/4"	Jet Blasts	Stripping	Raveling	Rutting	Skin Patches	Deep Patches	Localized Reconstruction	Oil Spillage	Poor	Fair	Good	Excellent
Taxiway 21 (Cont'd)																						
10+50--11+75	0	4	4	0	0	1	0	2	3	4	0	0	3	0	0	0	0	0				
14+00--22+00	0	4	4	0	0	1	0	2	2	4	0	0	3	0	0	0	0	0				
Taxiway 25																						
5+75--16+20	0	3	3	2	2	4	0	2	2	3	0	0	2	2	0	0	0	0				
Connecting Taxiway A																						
0+00--4+40	0	4	4	1	1	2	0	2	4	4	0	0	2	0	0	0	0	0				
Connecting Taxiway B																						
0+00--4+00	0	4	4	1	0	2	0	2	2	4	0	0	0	0	0	0	0	0				
Connecting Taxiway C																						
0+00--4+00	0	4	4	0	0	0	0	2	3	4	0	0	0	0	0	0	0	0				
Connecting Taxiway D																						
0+00--8+15	0	4	4	0	0	0	0	0	3	4	0	0	4	2	0	0	0	0				
Connecting Taxiway E																						
2+50--4+40	1	0	0	0	0	2	1	1	2	0	0	0	1	1	0	0	0	0				

Degree of Failure: 0 - None; 1 - Minor; 2 - Moderate; 3 - Major; 4 - Severe.

Appendix D

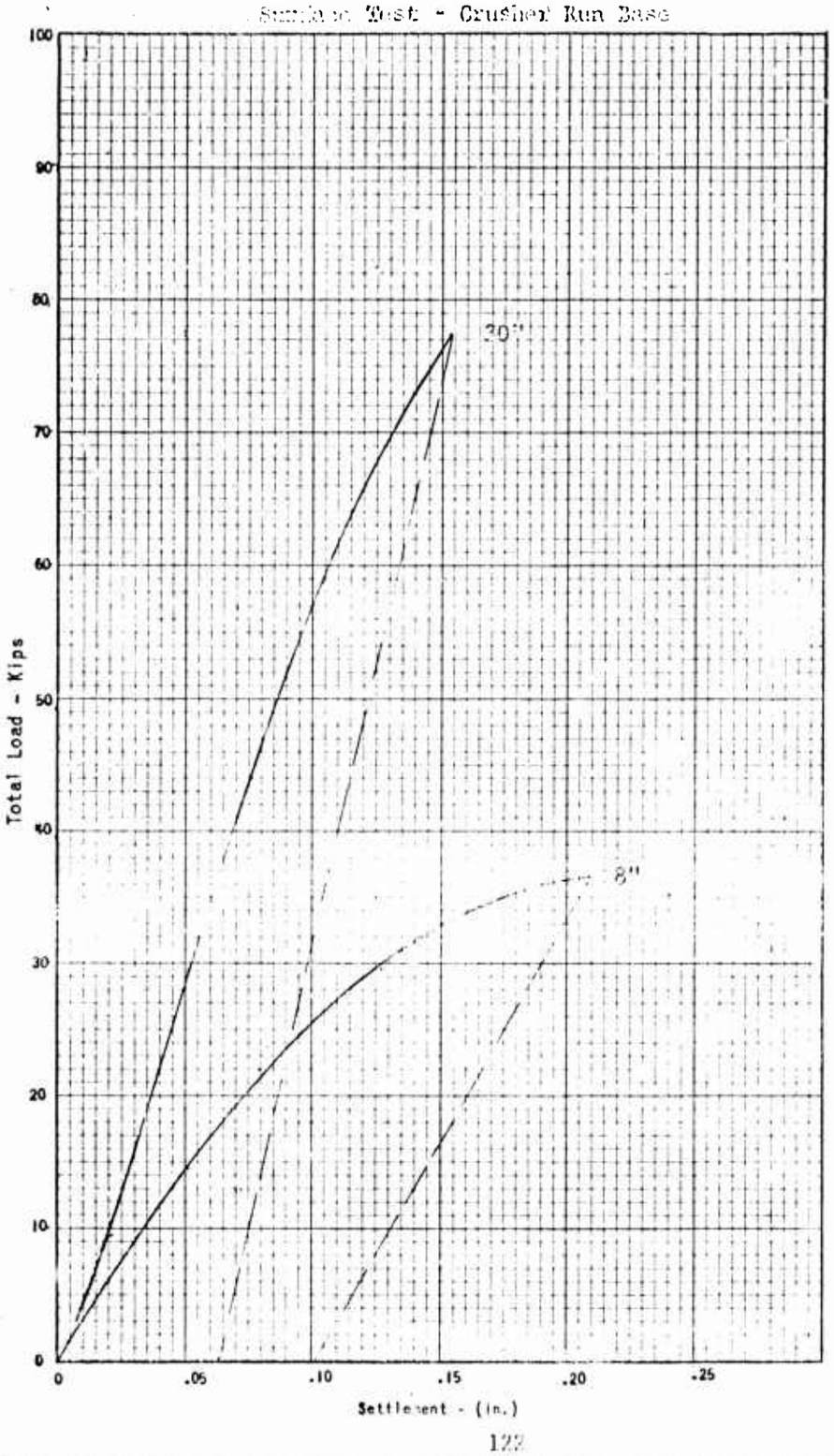
SURFACE PLATE LOAD TEST RESULTS

NAVFAC NCEL 3960/20 (1-64)

TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 3-21	10+00

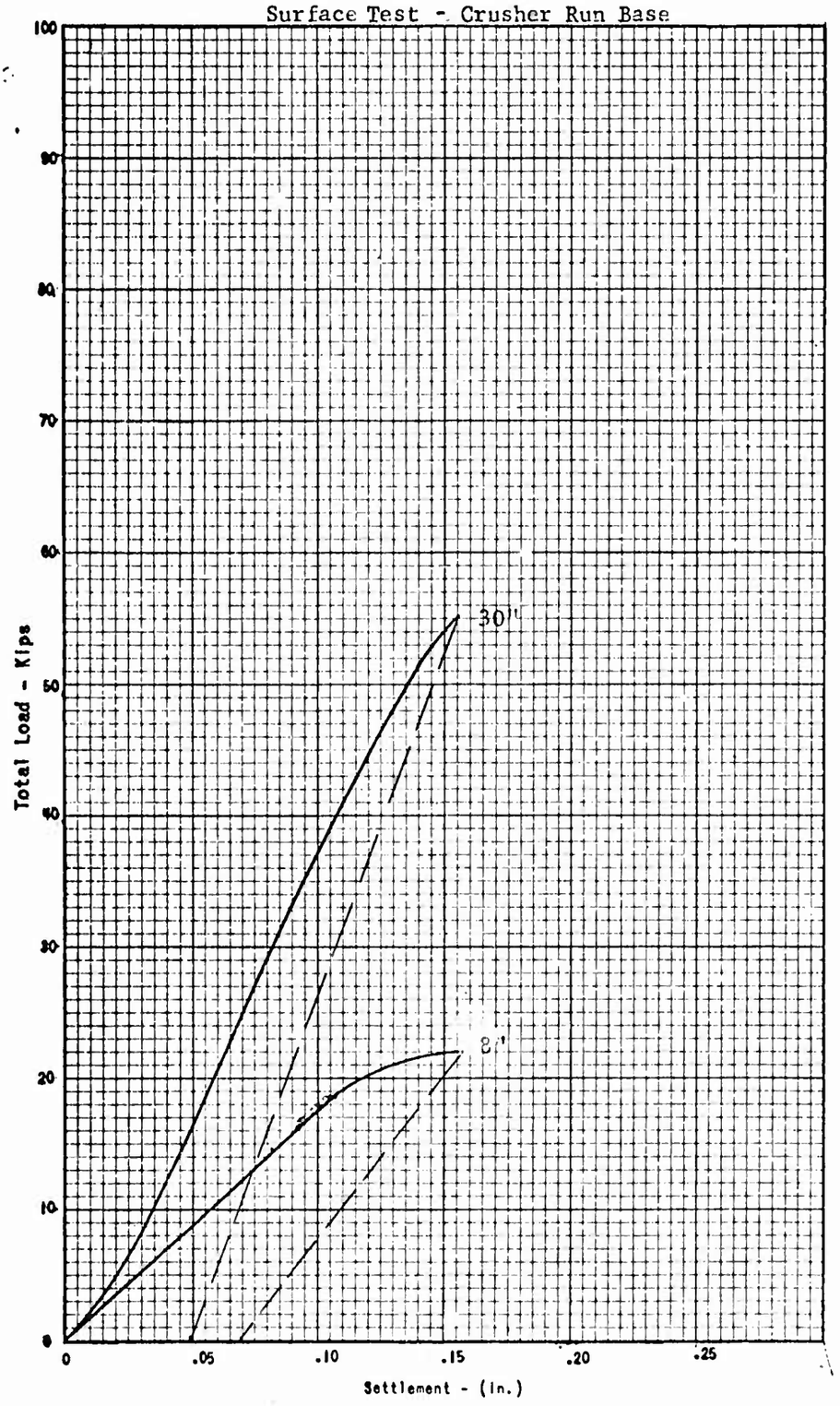
Simulated Test - Crushed Run Base



NAVFAC NCEL 3960/20 (1-68) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 3-21	20+00

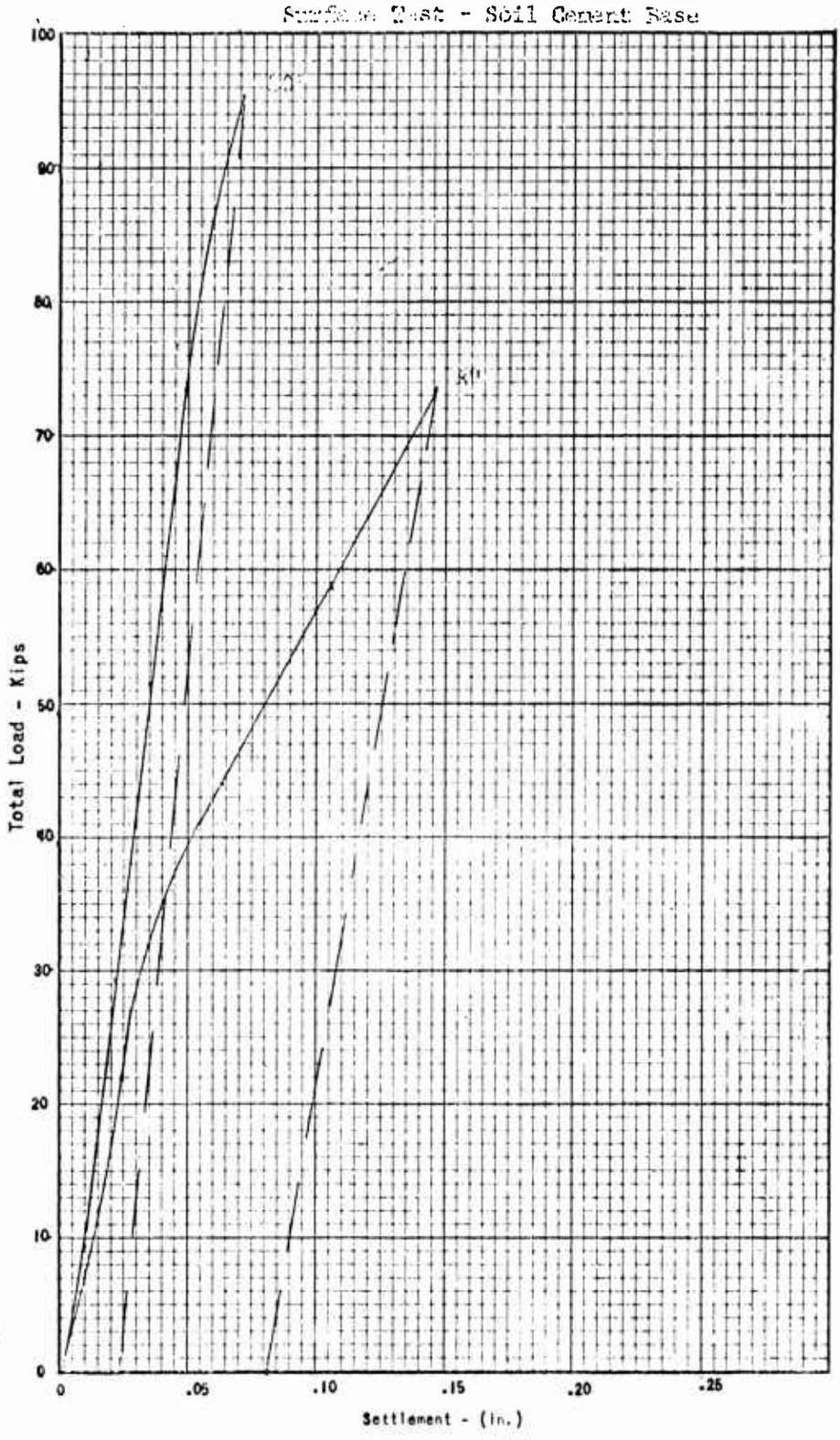
Surface Test - Crusher Run Base



NAVFAC NCEL 3950/20 (1-64) TOTAL LOAD vs. DEFLECTION

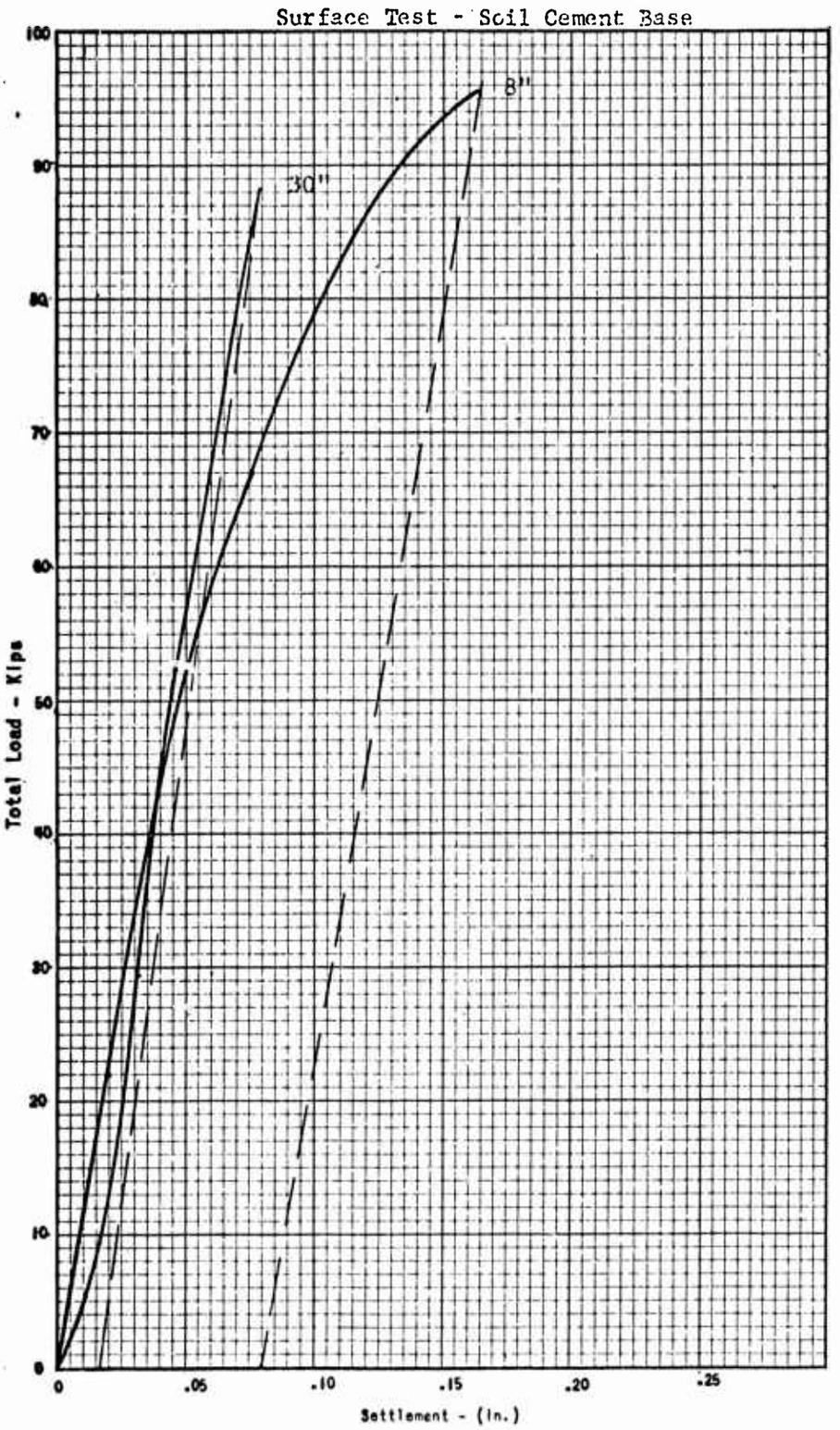
FACILITY	LOCATION	STATION
[illegible]	Runway 3-21	42+00

Surface Test - Soil Cement Base



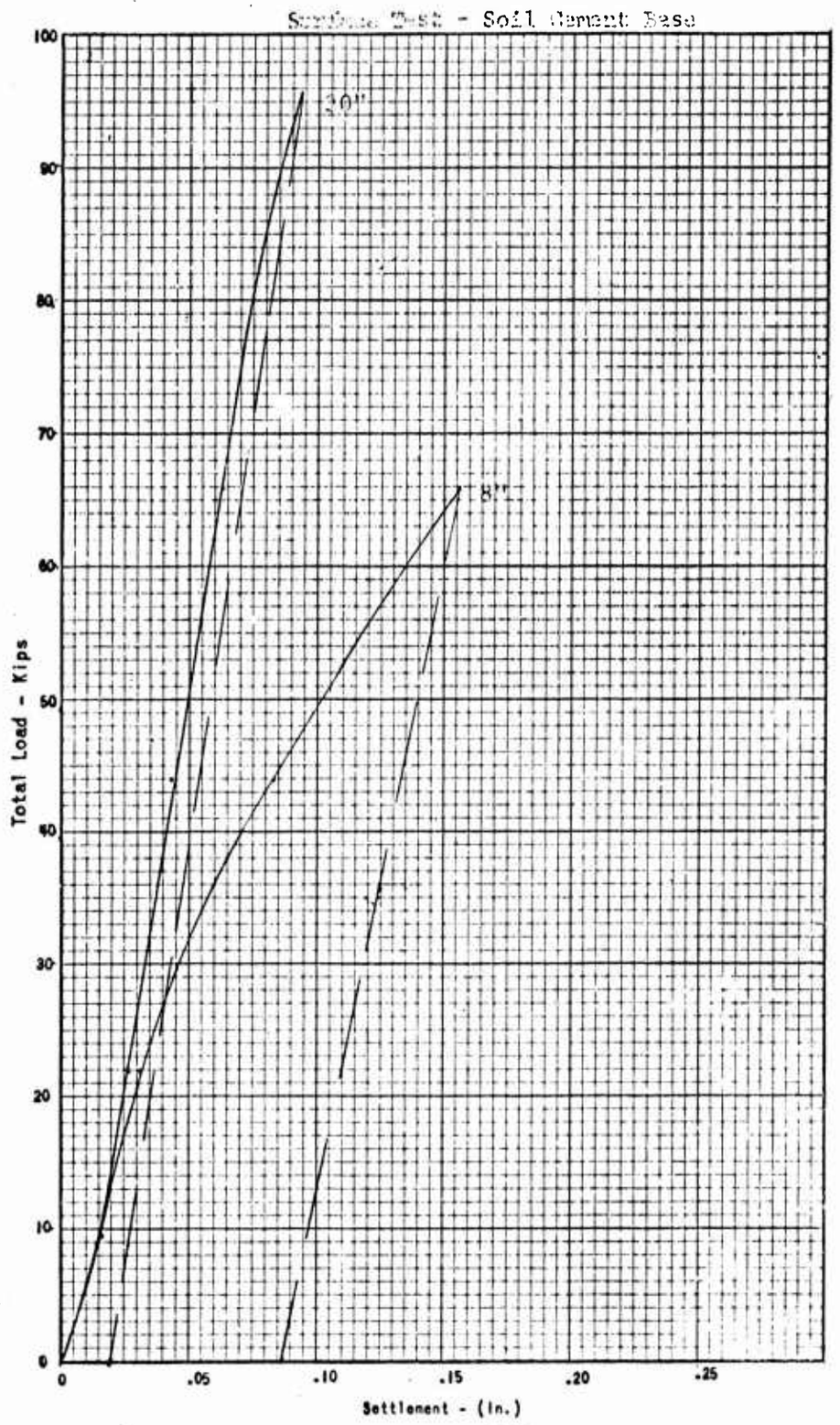
NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 3-21	52+00



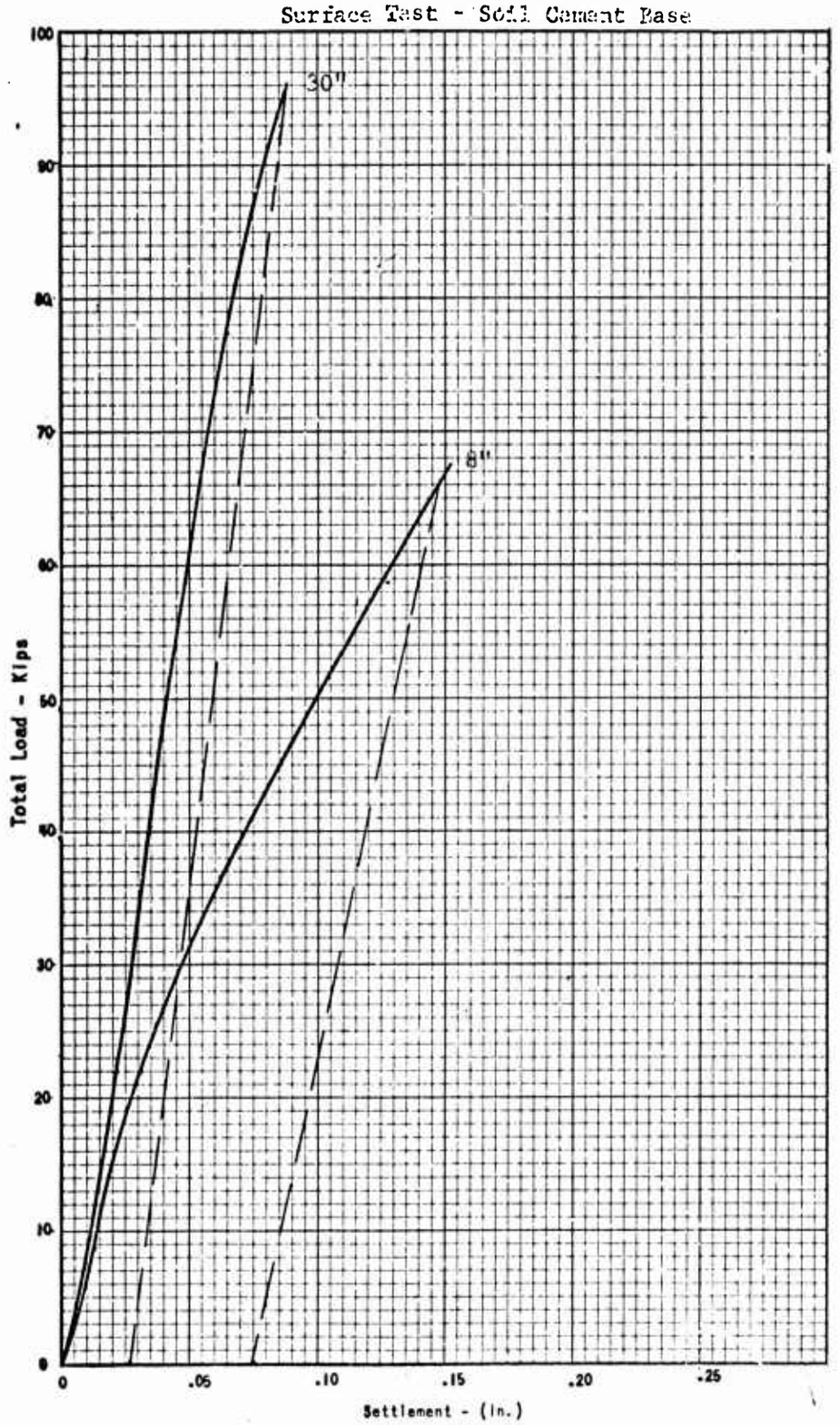
NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF Edwards, California	Runway 3-21	62+00



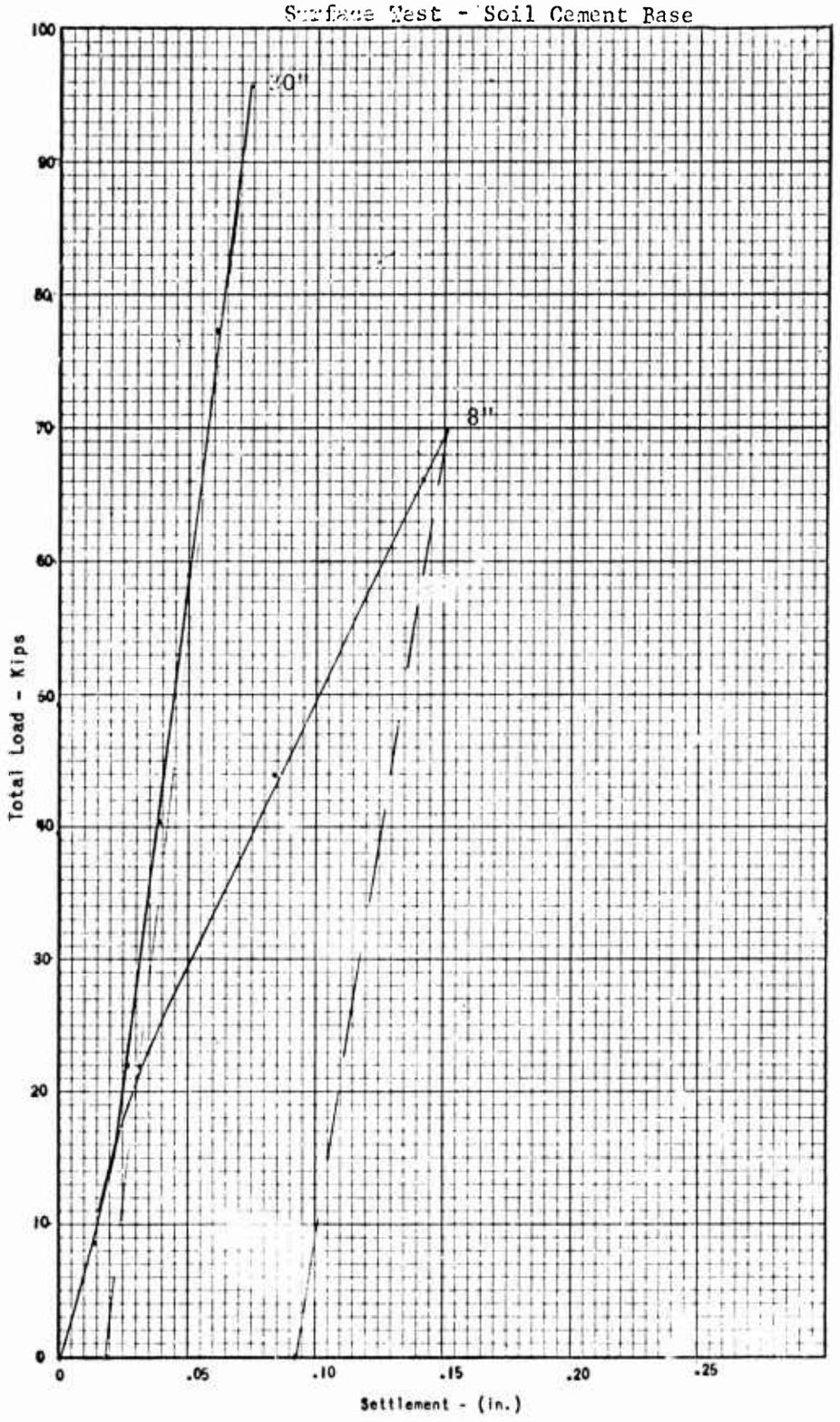
IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 3-21	72+00



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

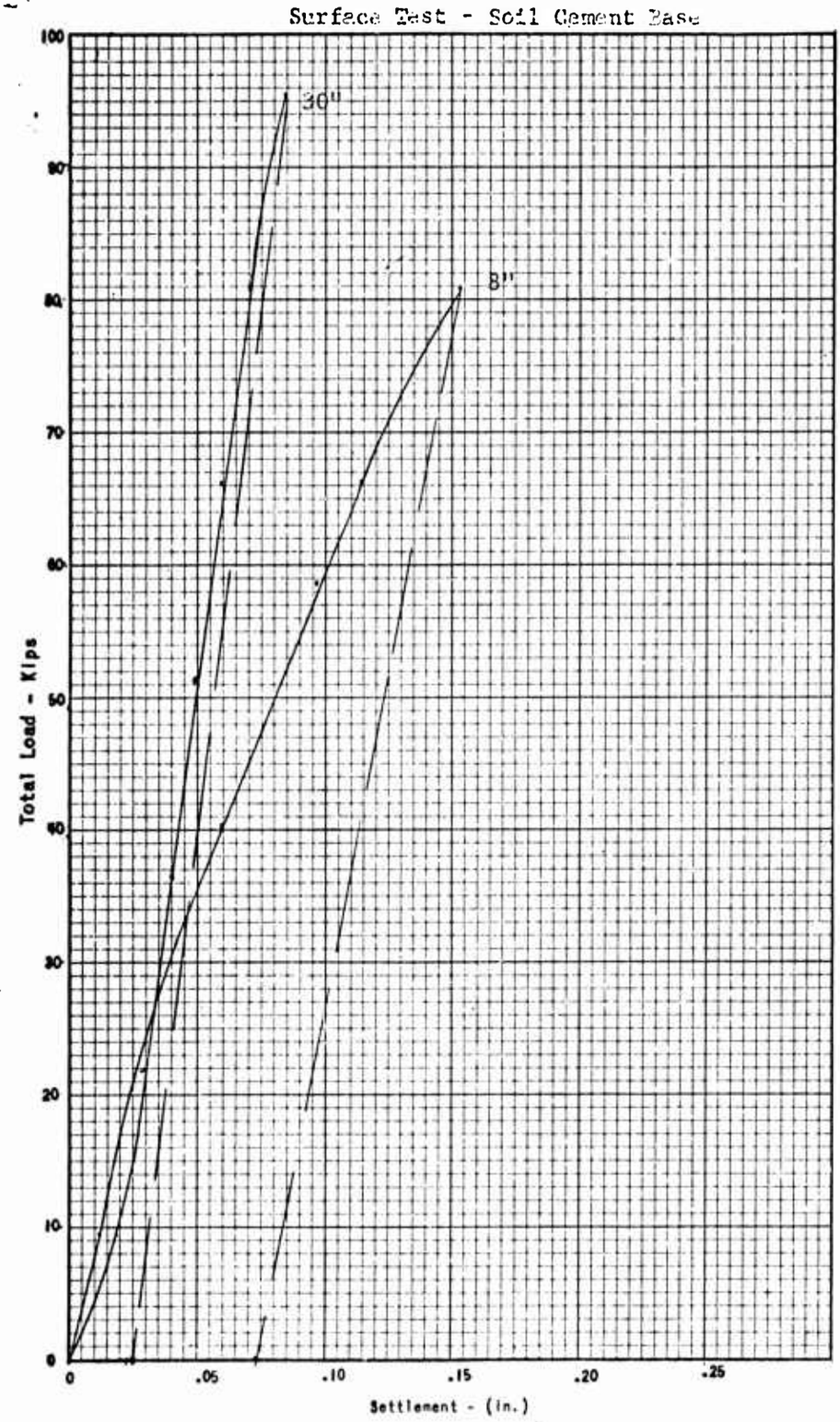
FACILITY	LOCATION	STATION
USNAF Clear Lake, California	Runway 3-21	80+00



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 3-21	87+00

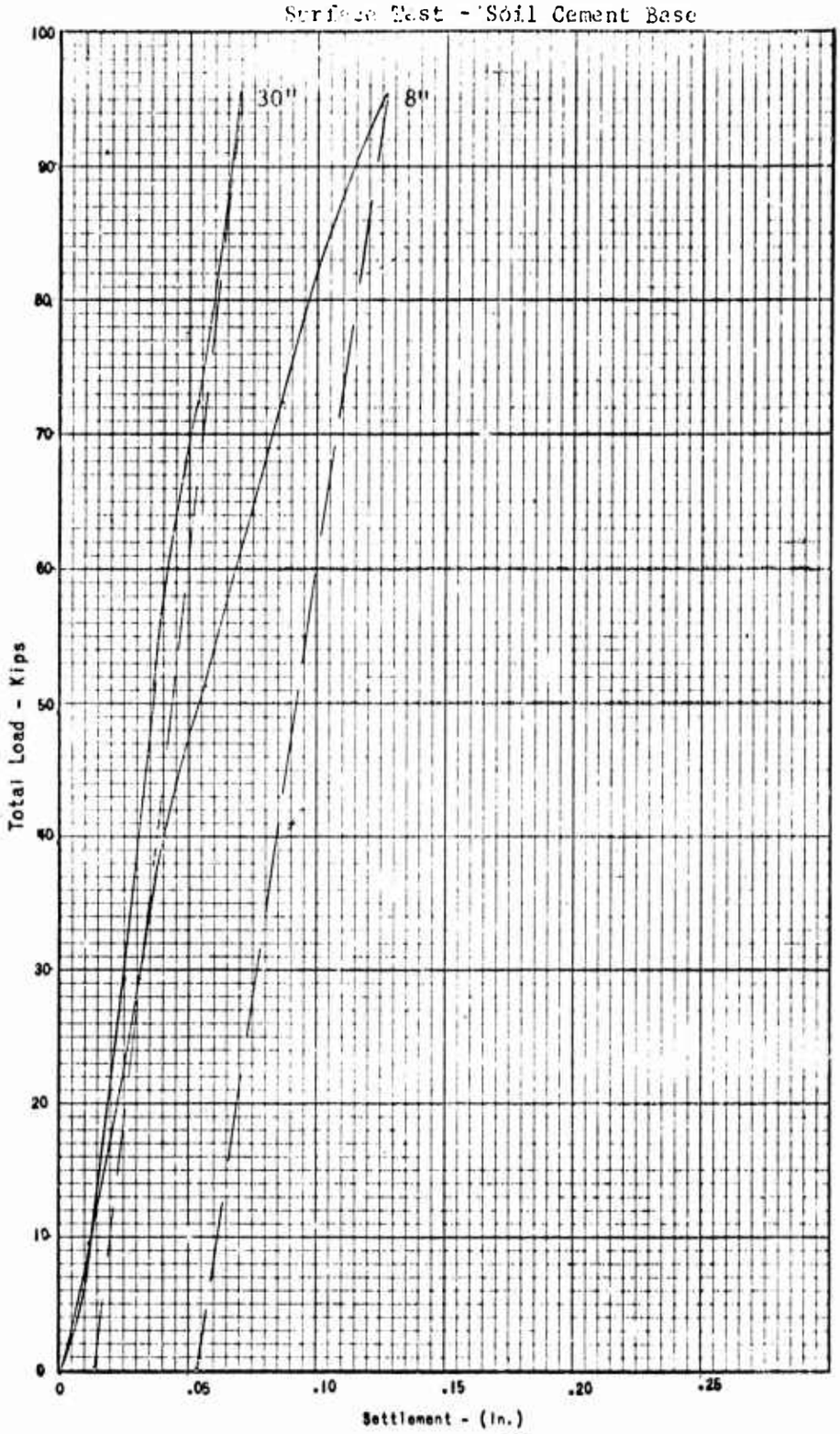
Surface Test - Soil Cement Base



FORM NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
[illegible] Lake, California	Runway 7-25	16400

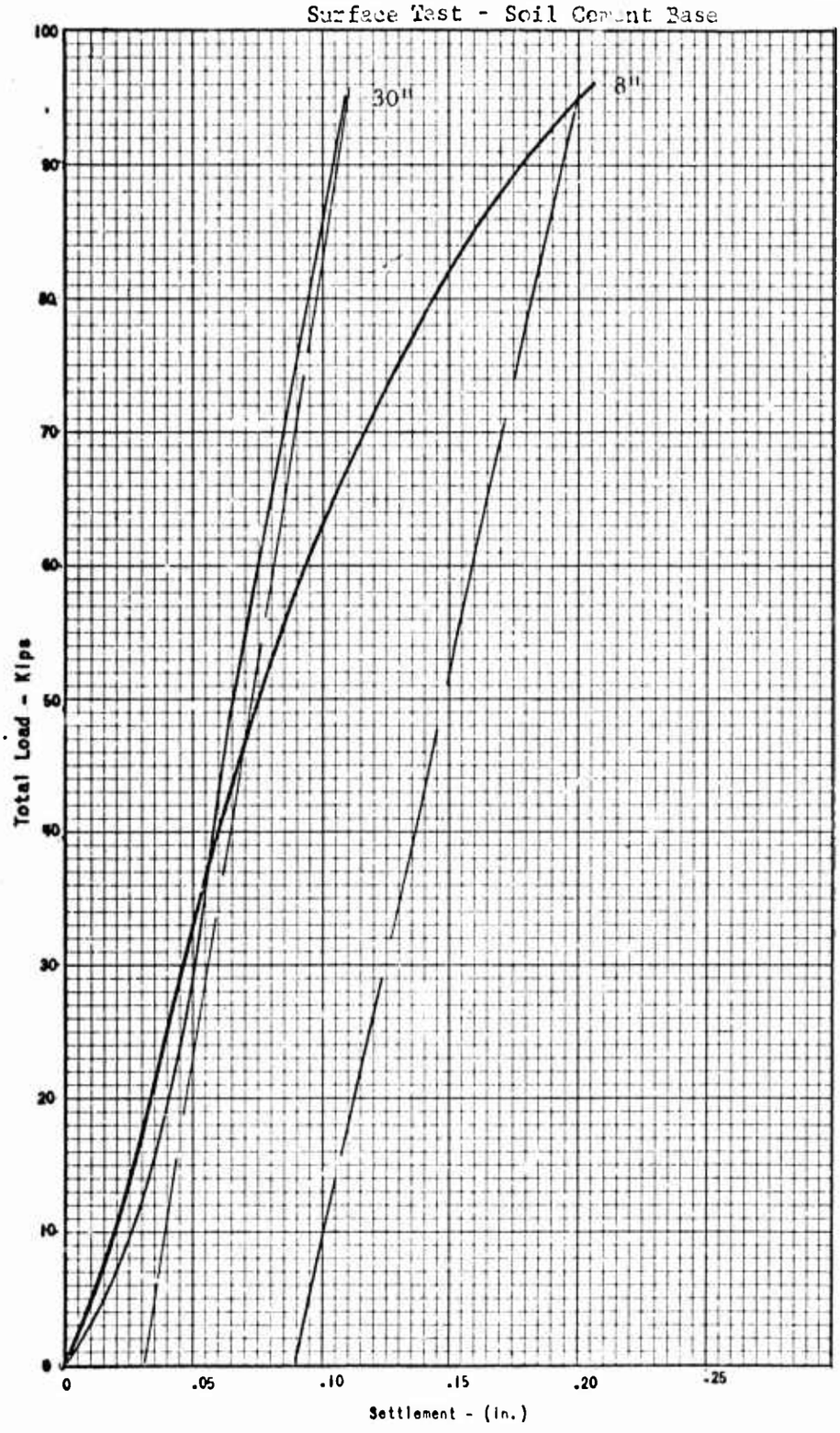
Surface Test - Soil Cement Base



FIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	26+00

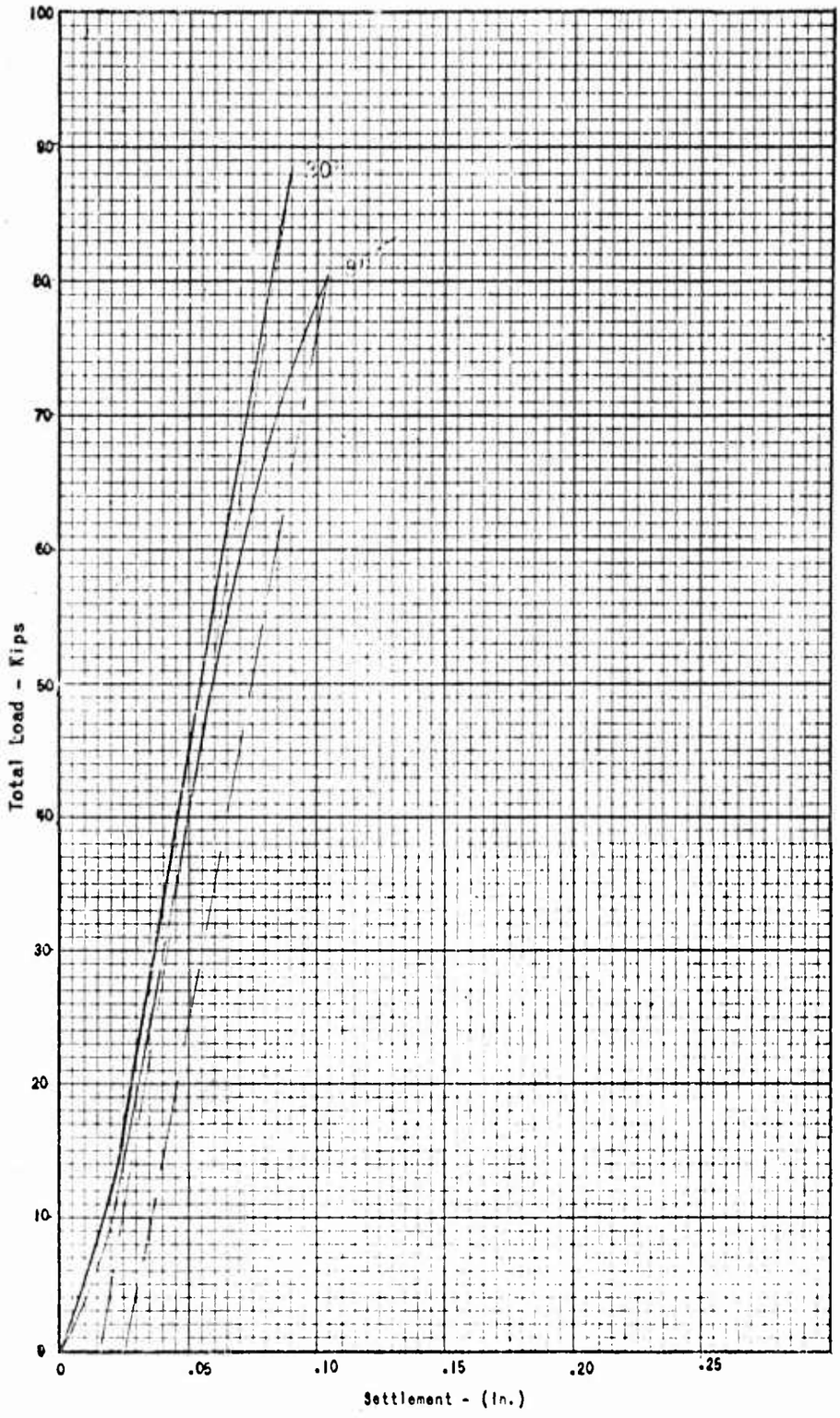
Surface Test - Soil Cement Base



FIND NCEL 3900/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNOTS China Lake, California	Runway 7-25	36+00

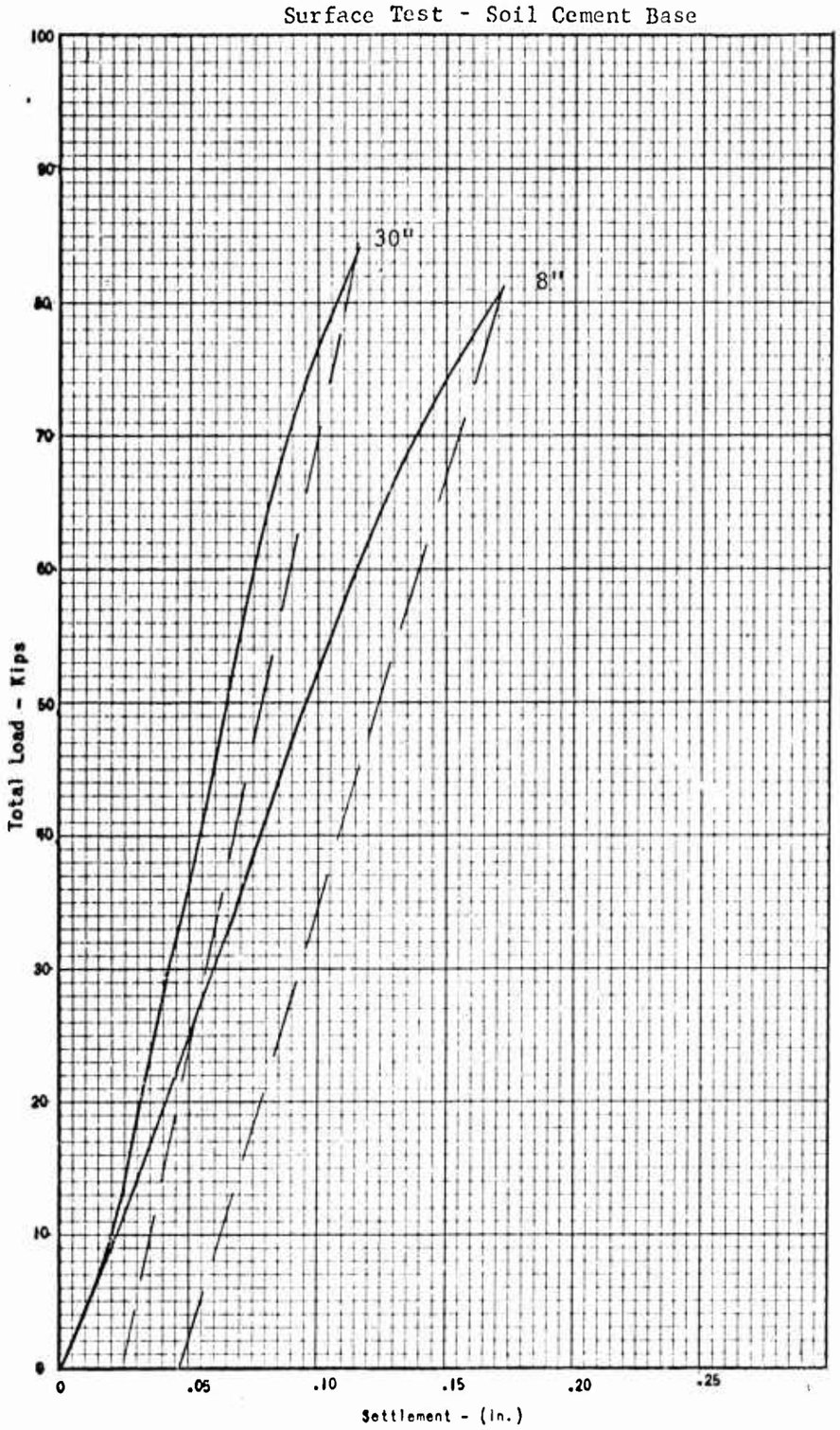
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-74) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	46+00

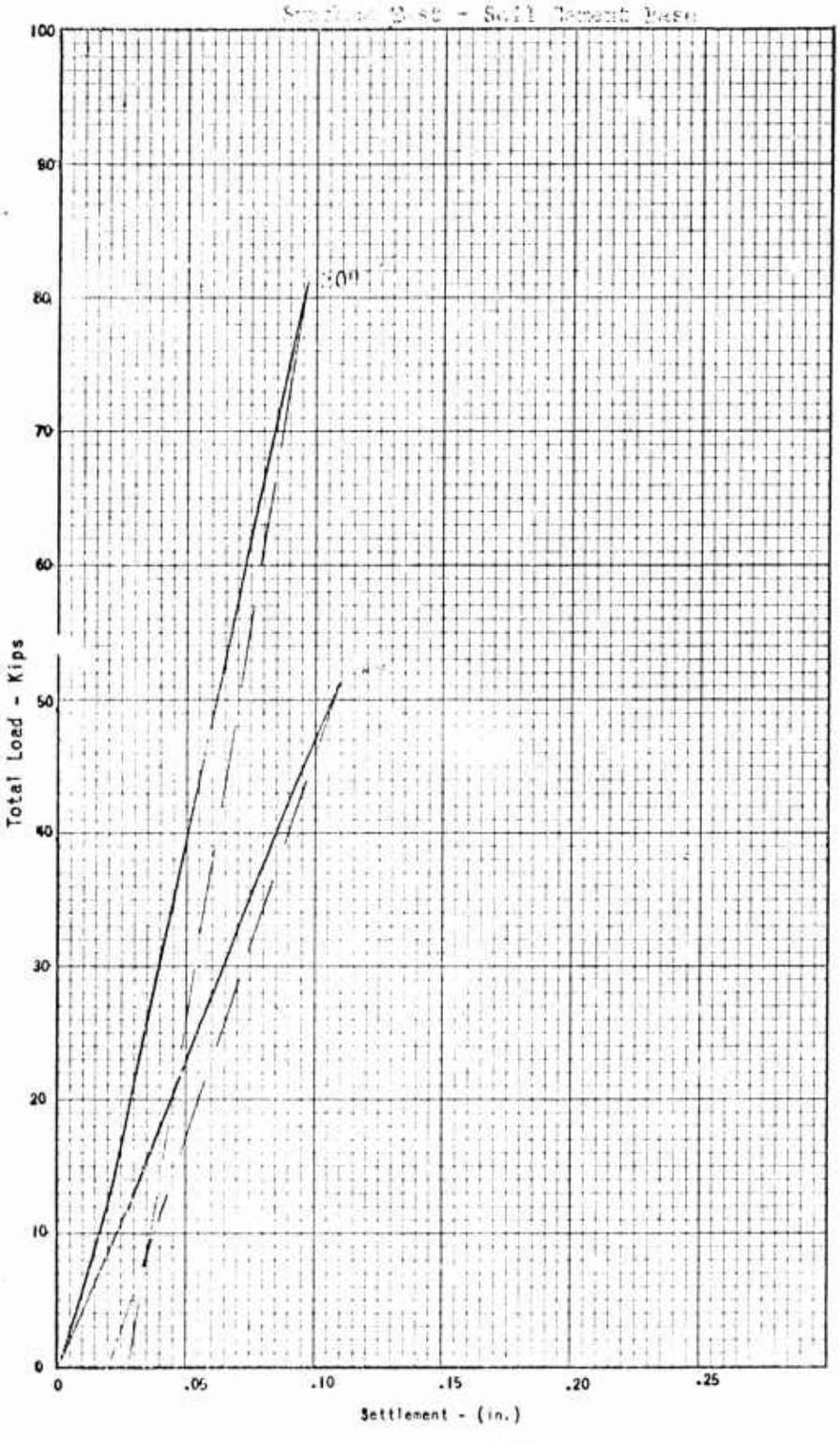
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64)

TOTAL LOAD vs. DEFLECTION

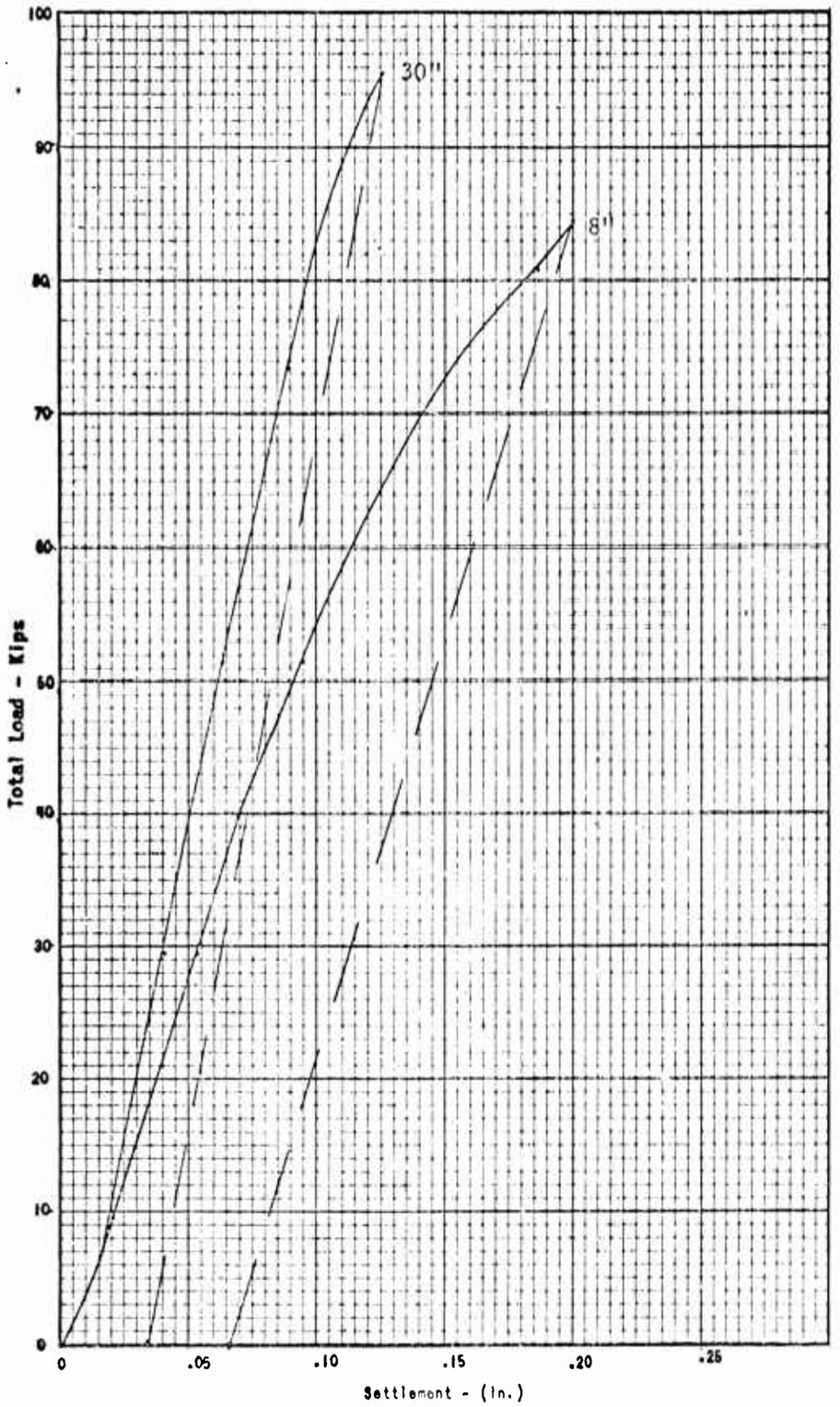
FACILITY	LOCATION	STATION
[illegible]	Runway 7-25	56+00



NAVFAC NCEL 3930/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	66+00

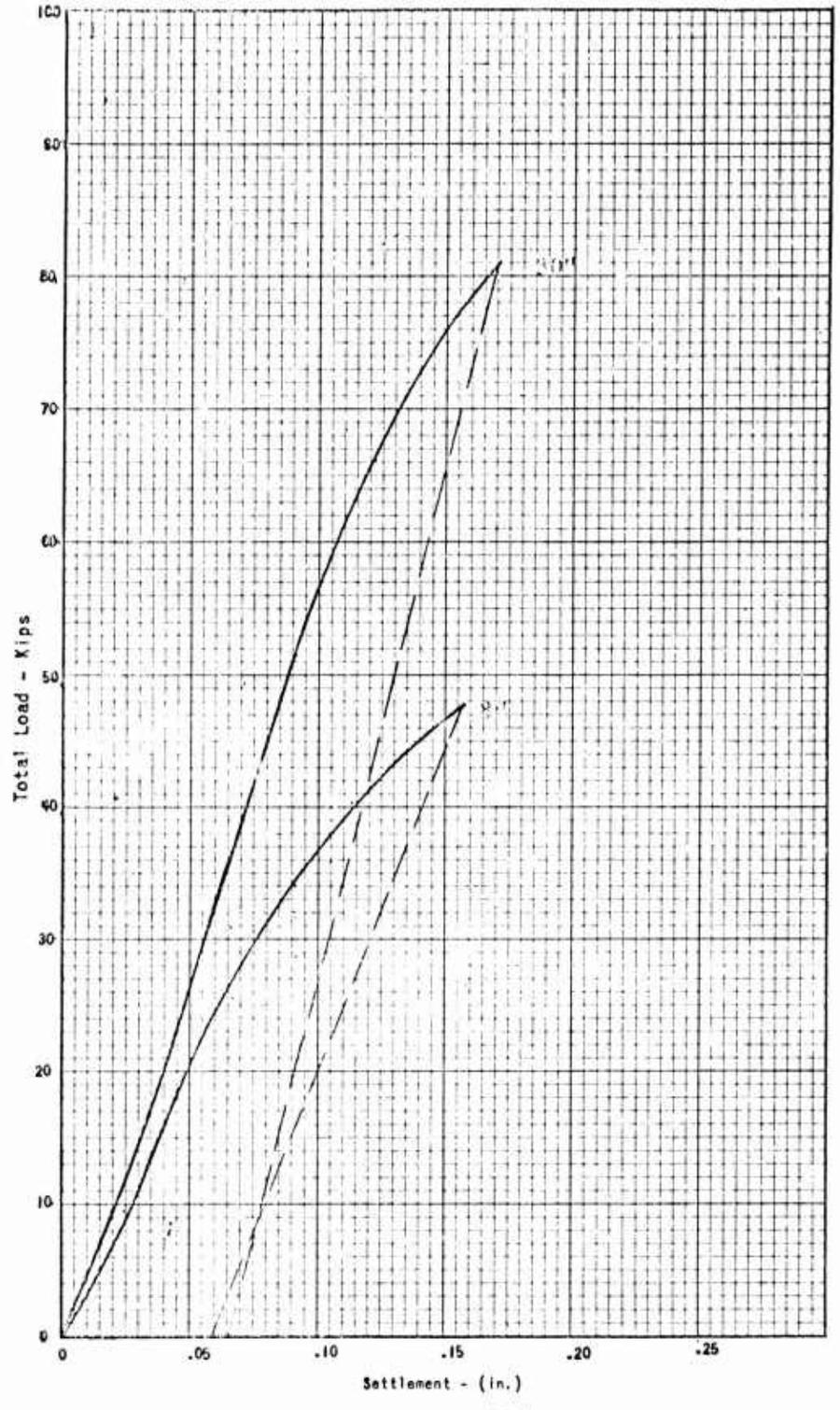
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

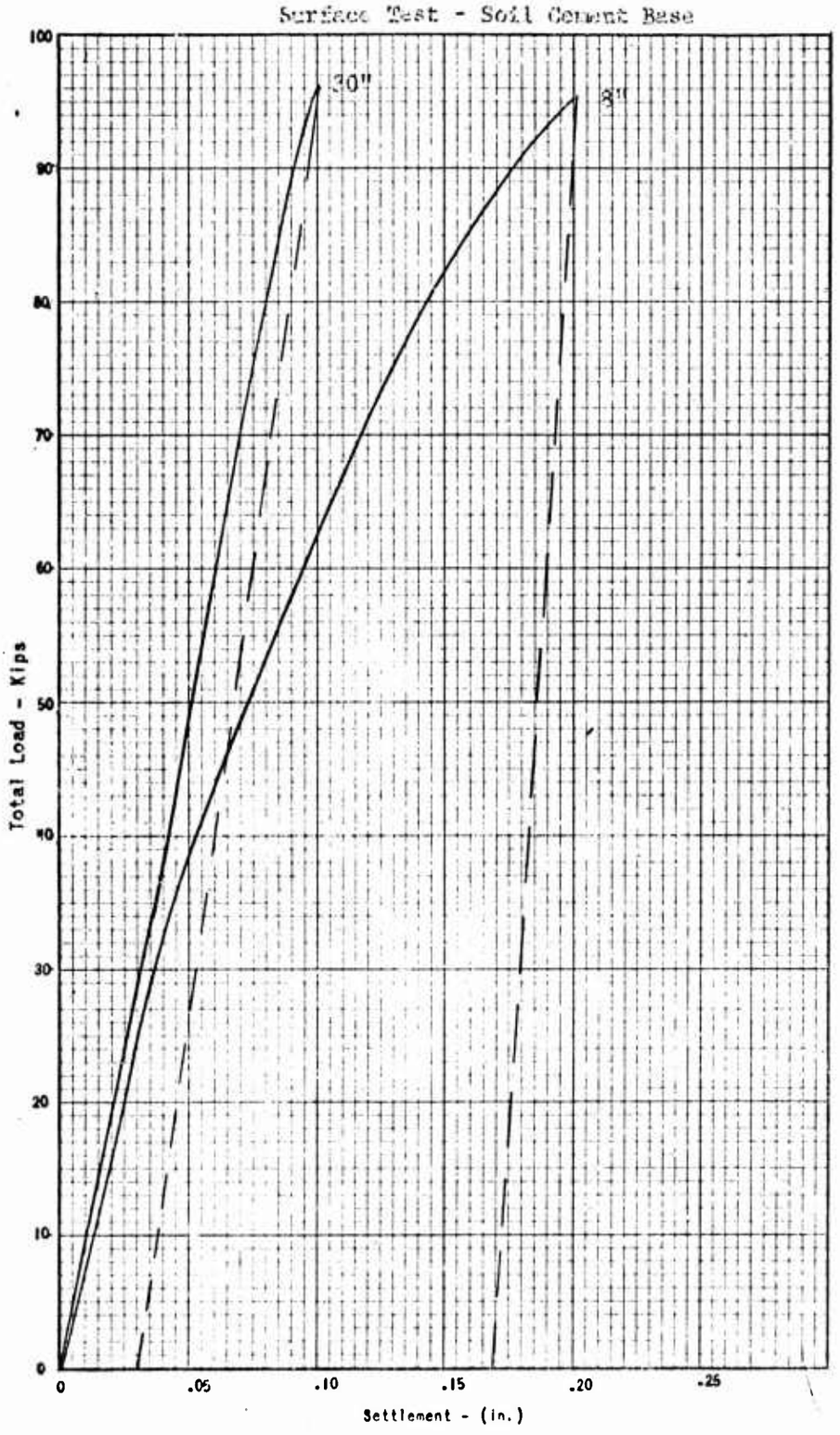
FACILITY	LOCATION	STATION
[illegible]	Runway 14-32	14+00

Surface Test - Soil Cement Base



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

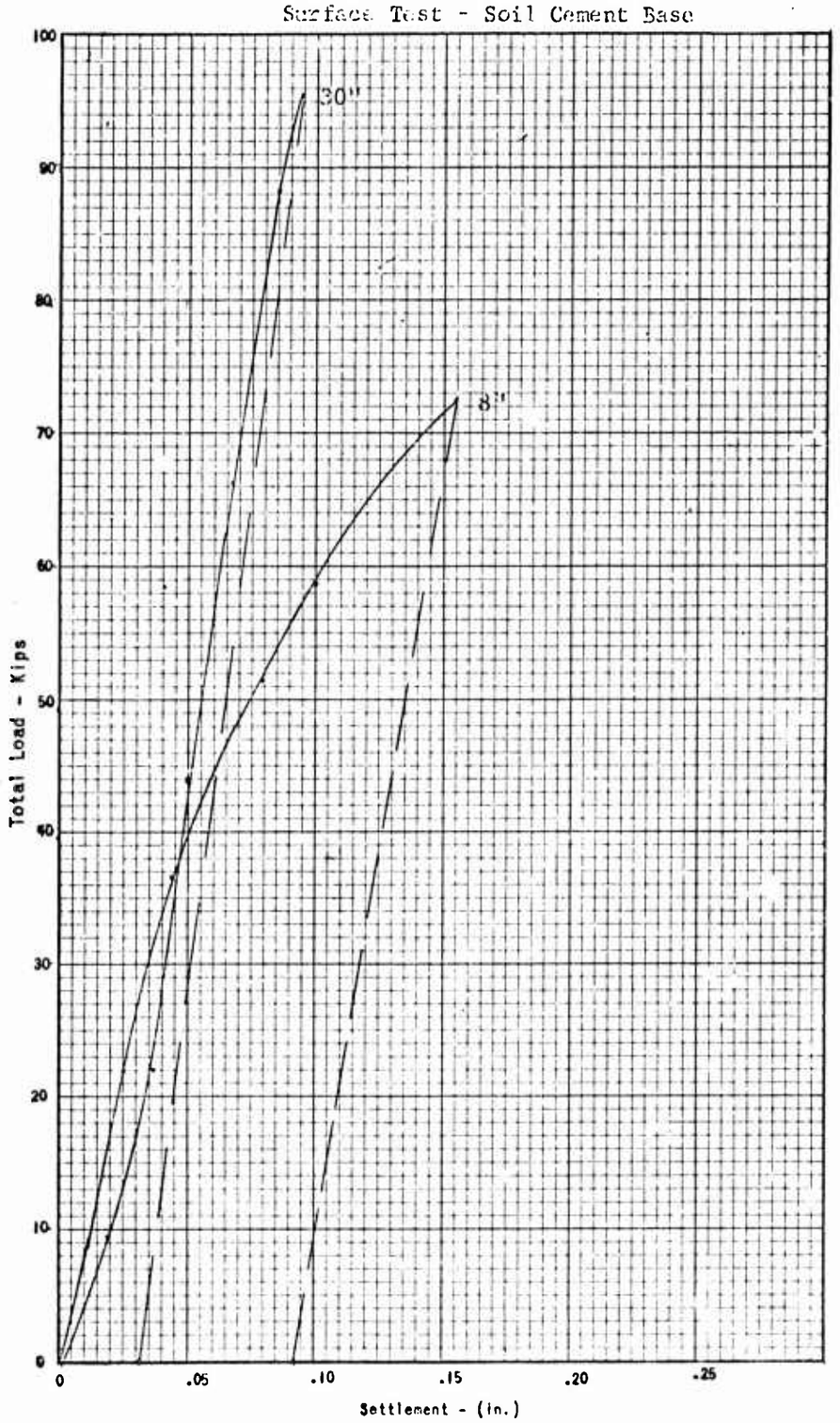
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	24+00



TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAS China Lake, California	Runway 14-32	34+00

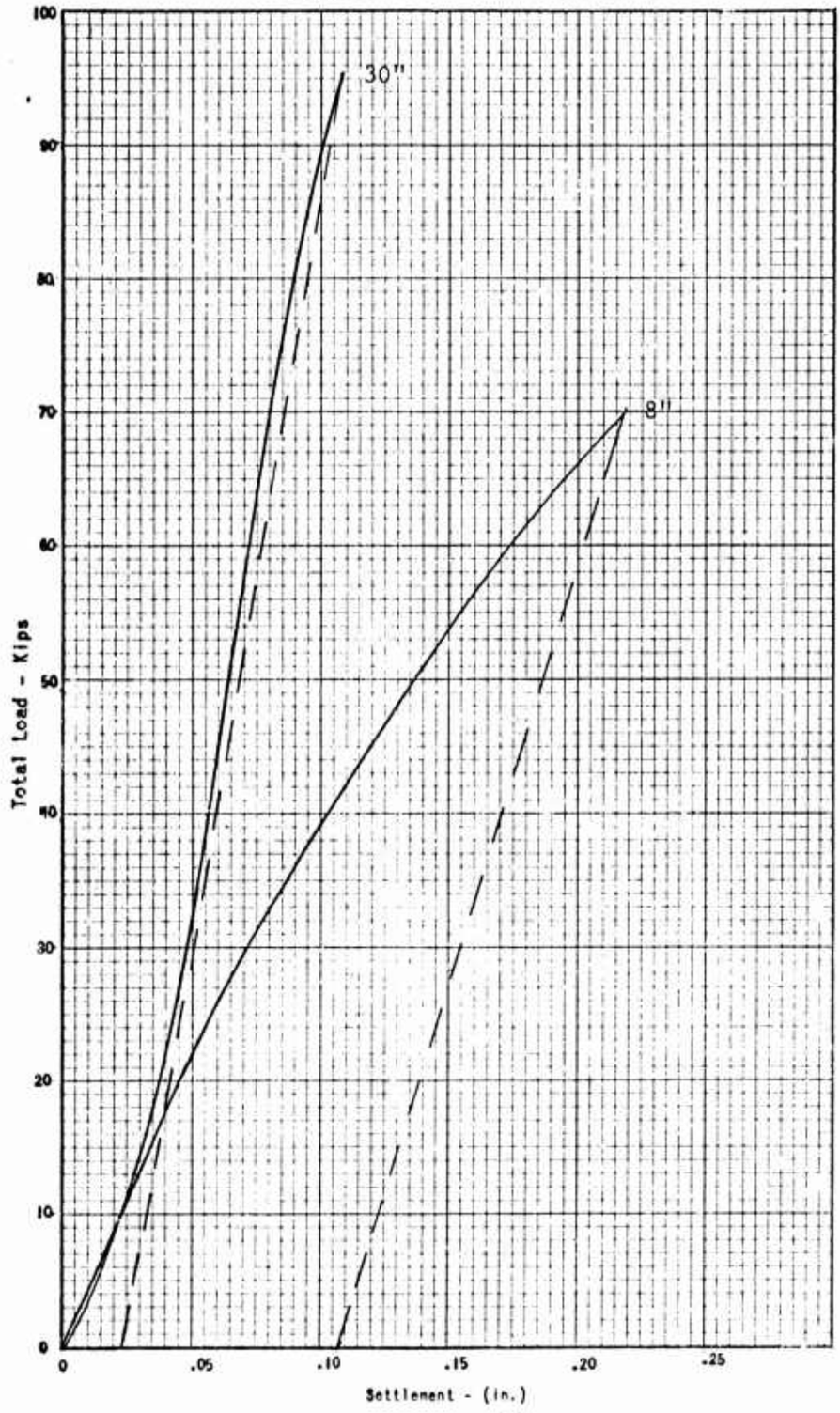
Surface Test - Soil Cement Base



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	44+00

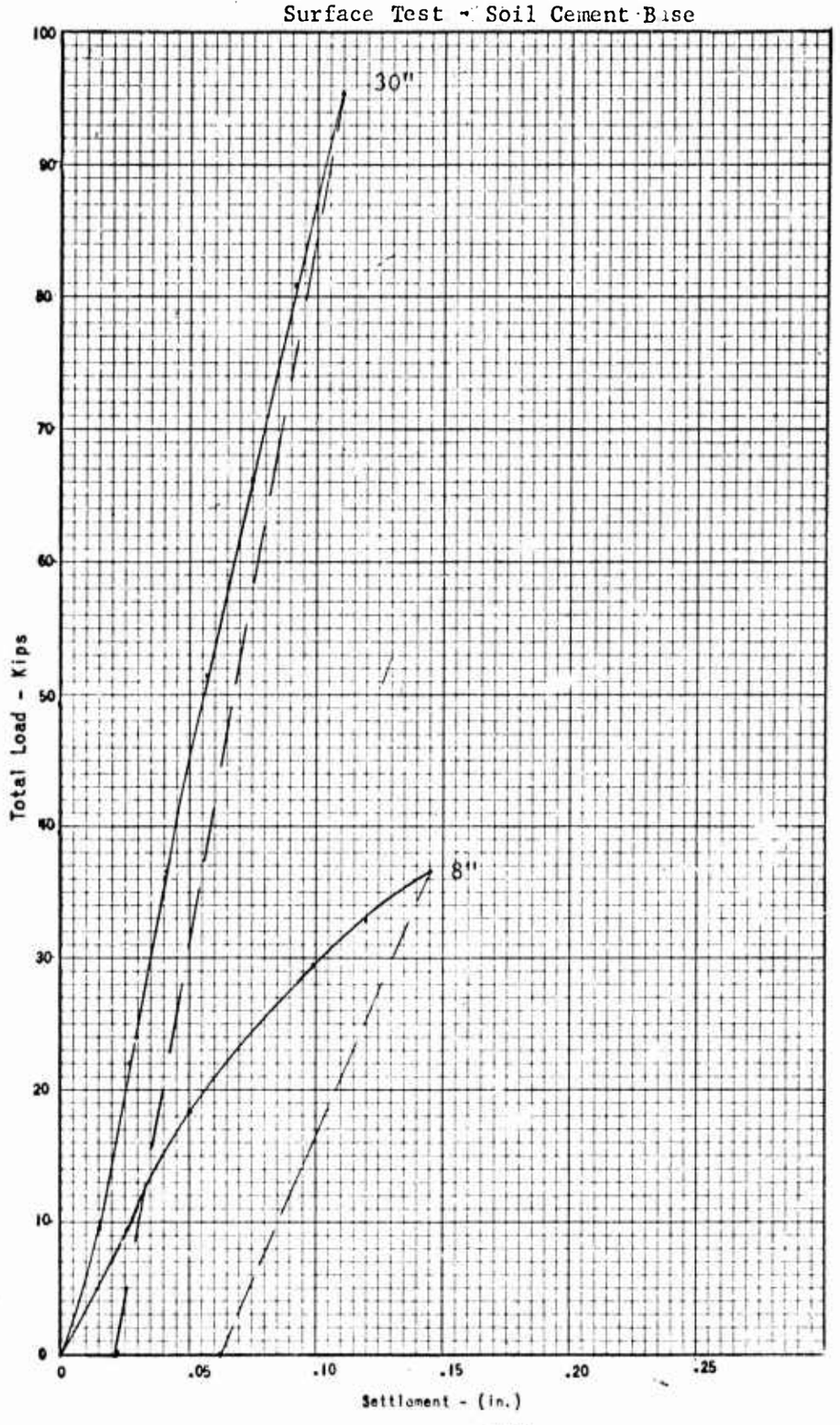
Surface Test - Soil Cement Base



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	54+00

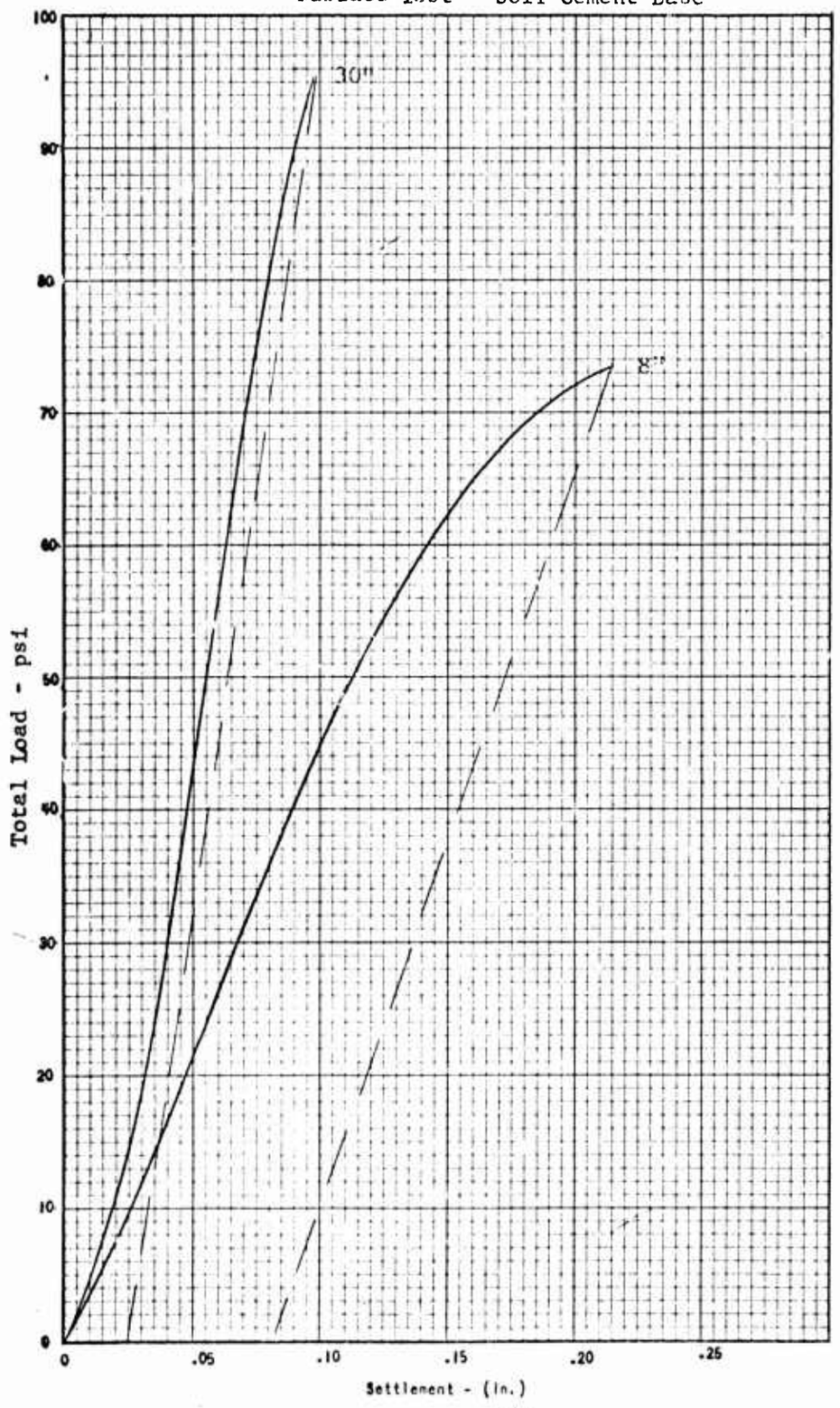
Surface Test - Soil Cement Base



11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	62+00

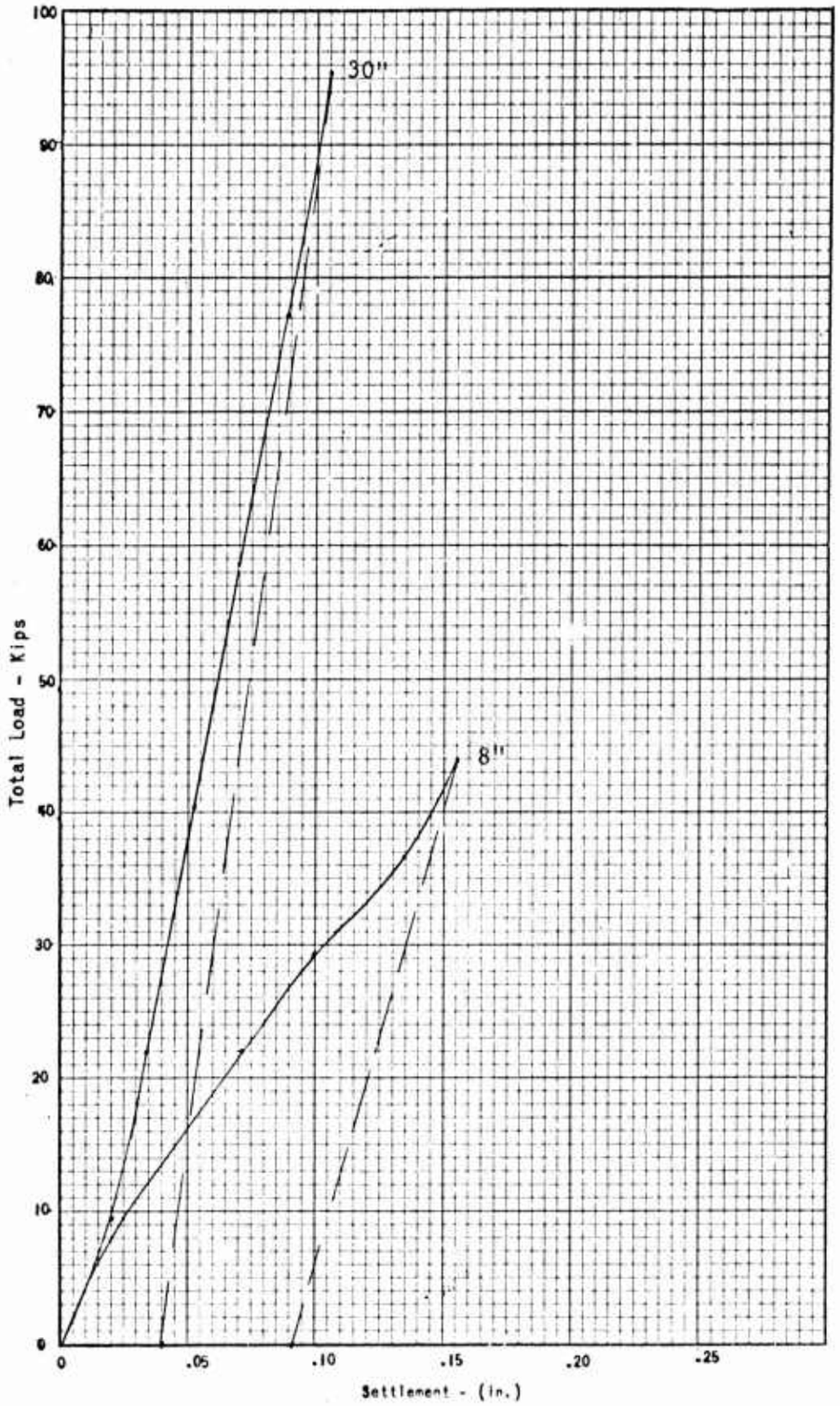
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	74+00

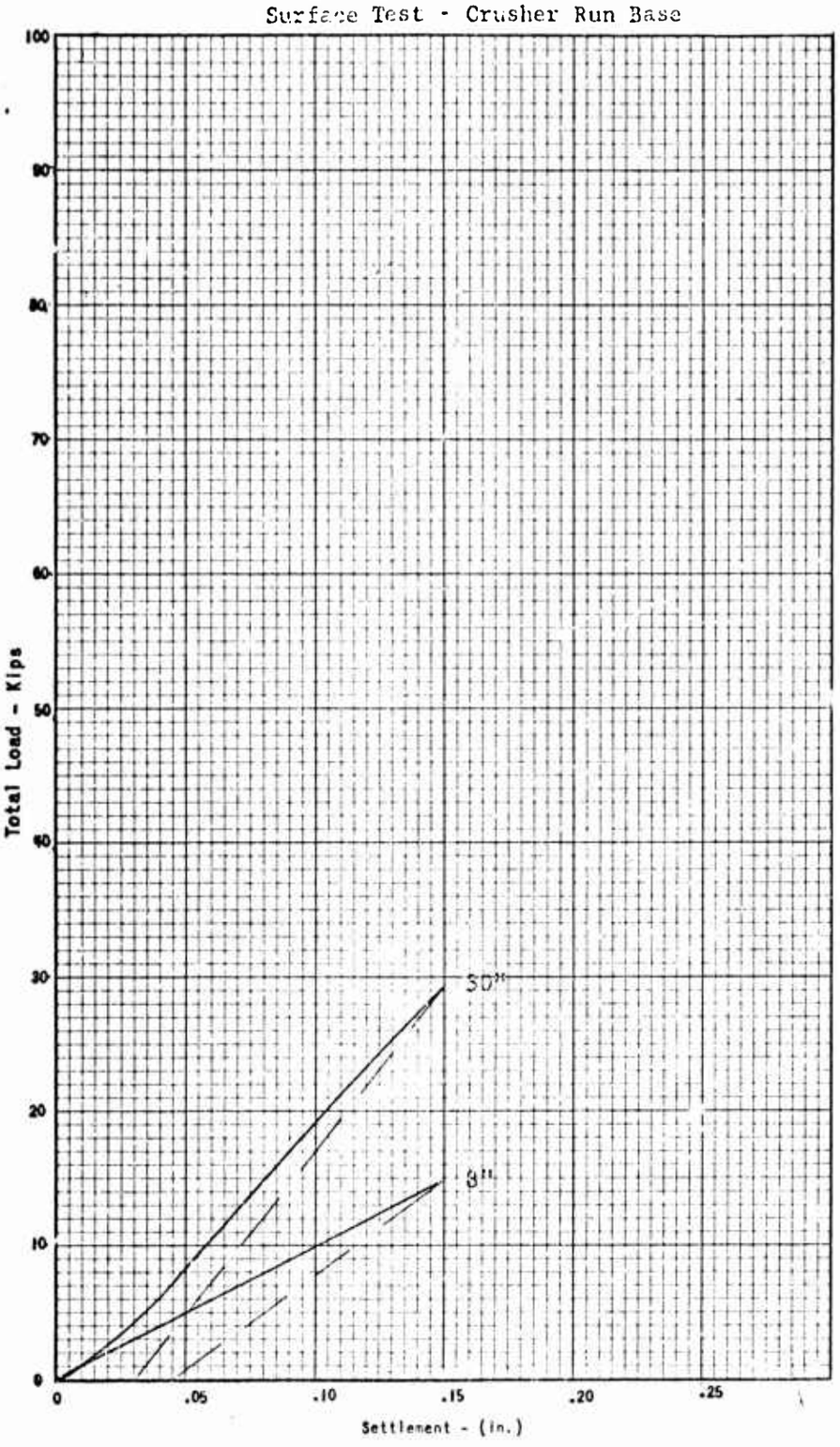
Surface Test - Soil Cement Base



FORM NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	10+00, South end

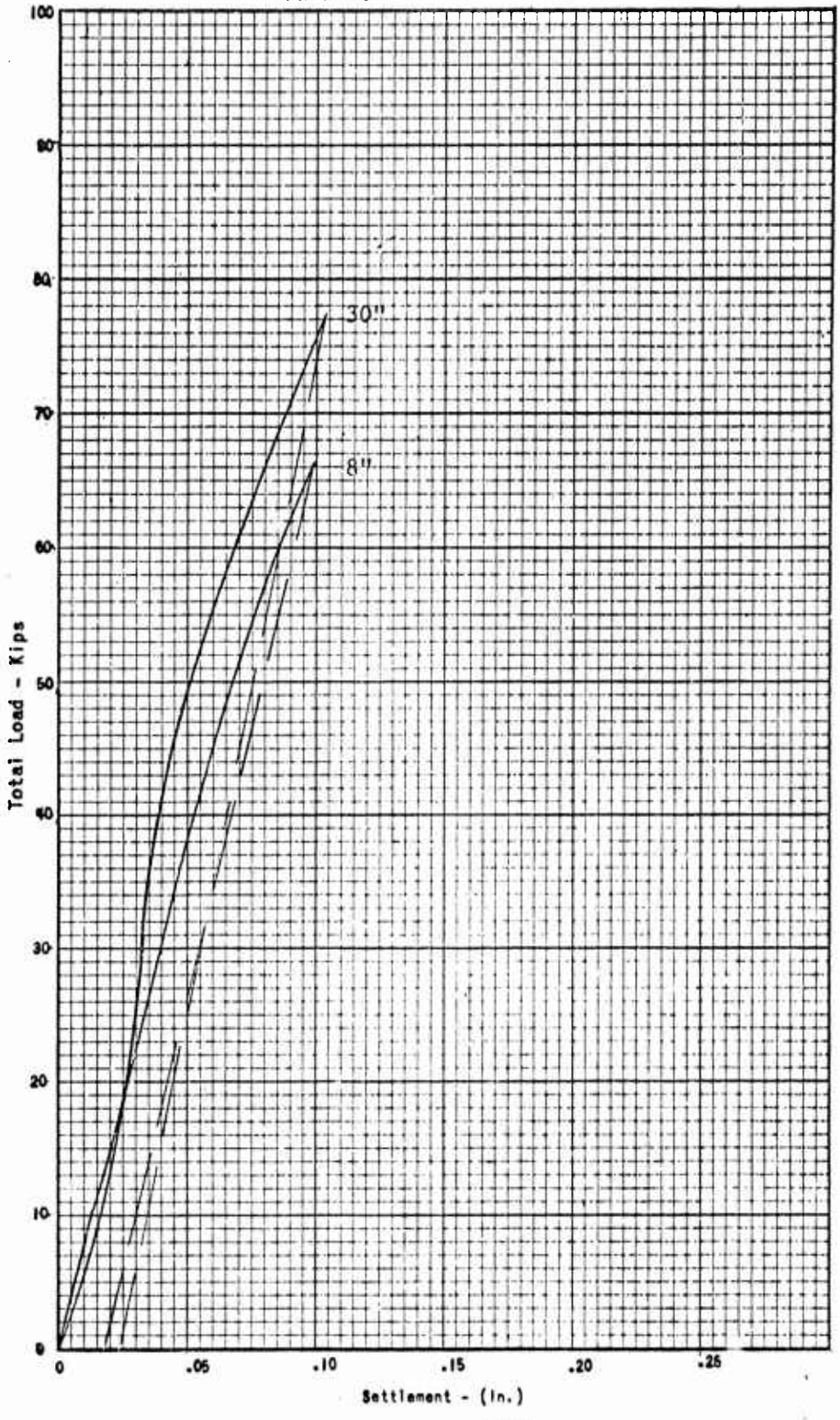
Surface Test - Crusher Run Base



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	20+00

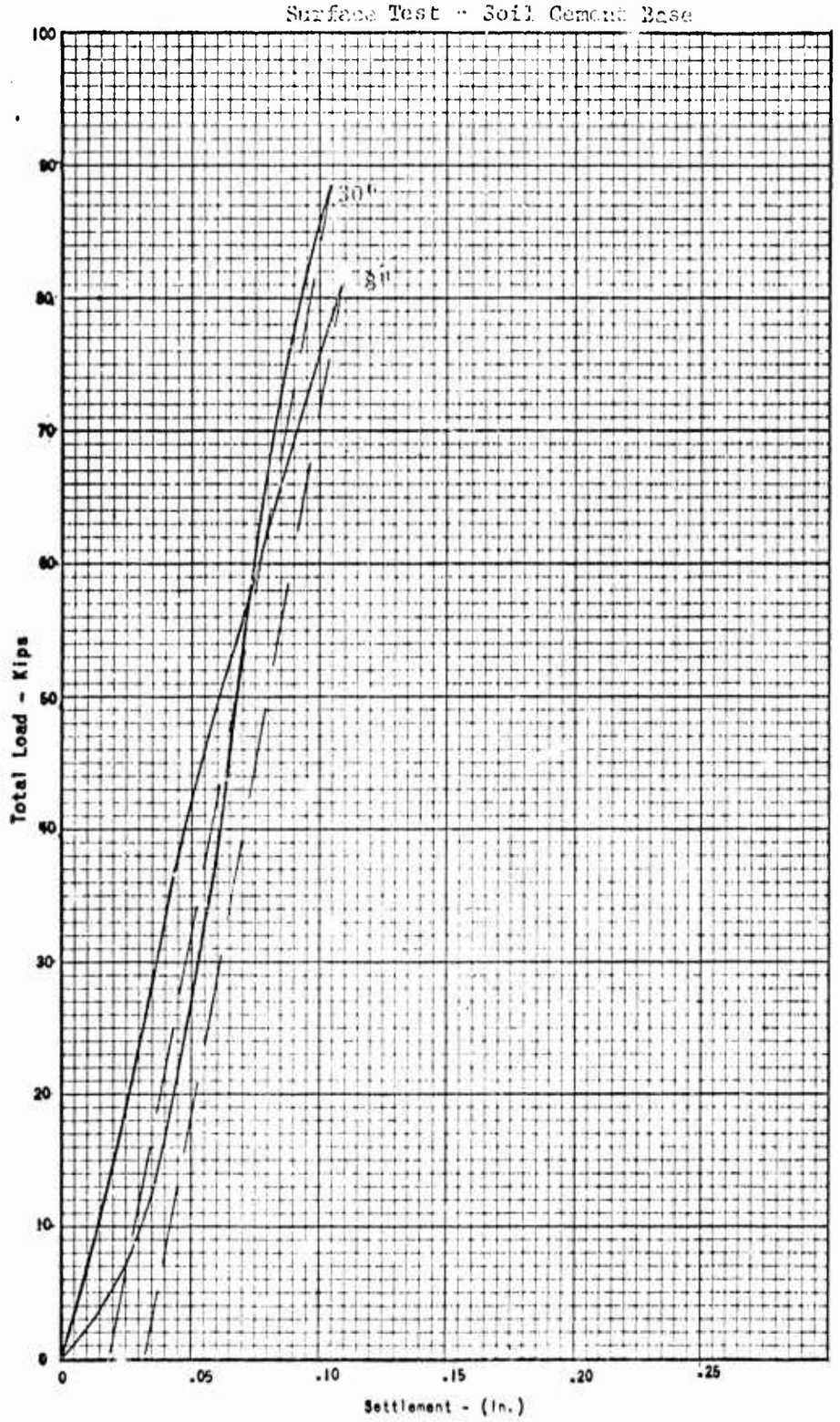
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxi way 14-32	30+00

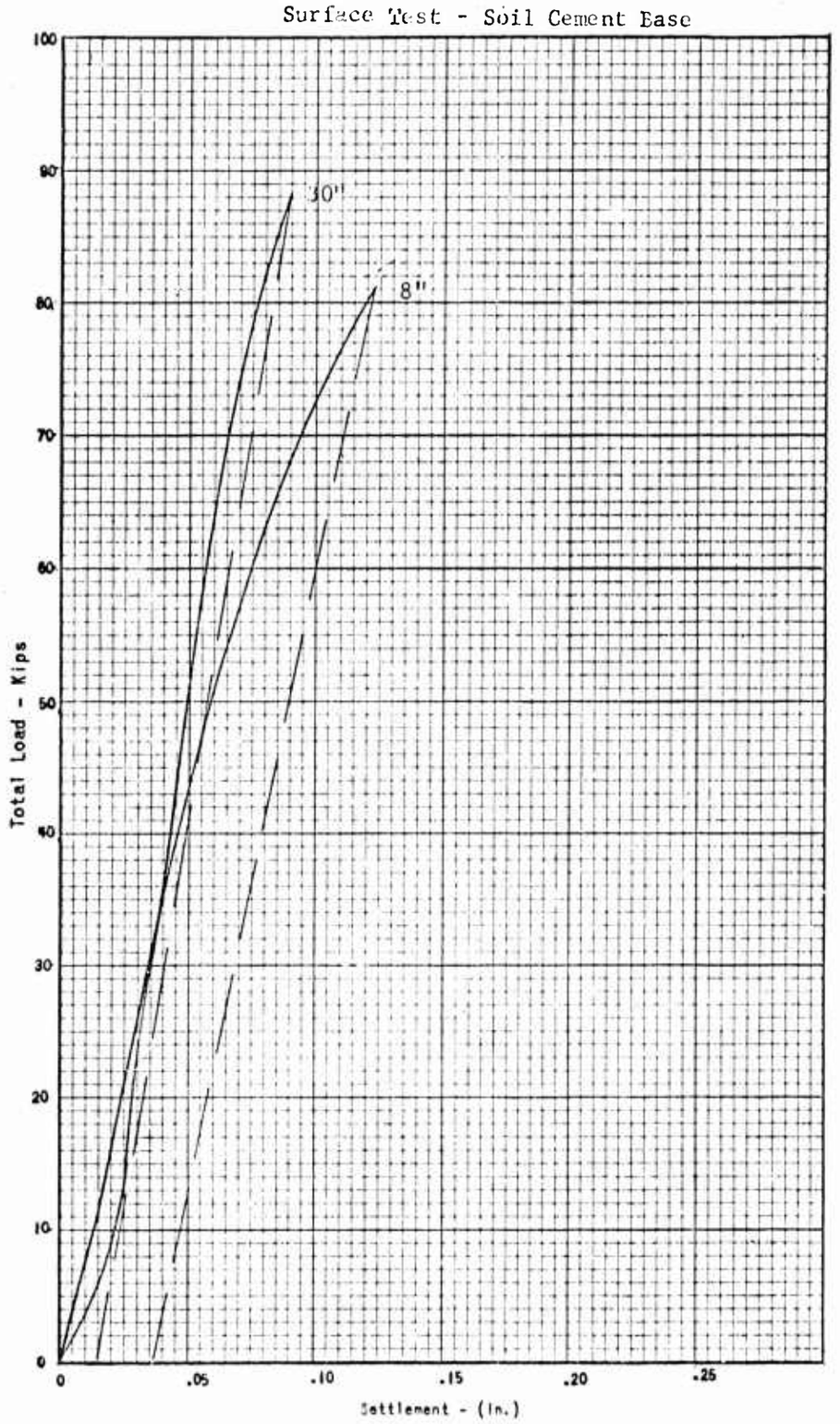
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	40+00

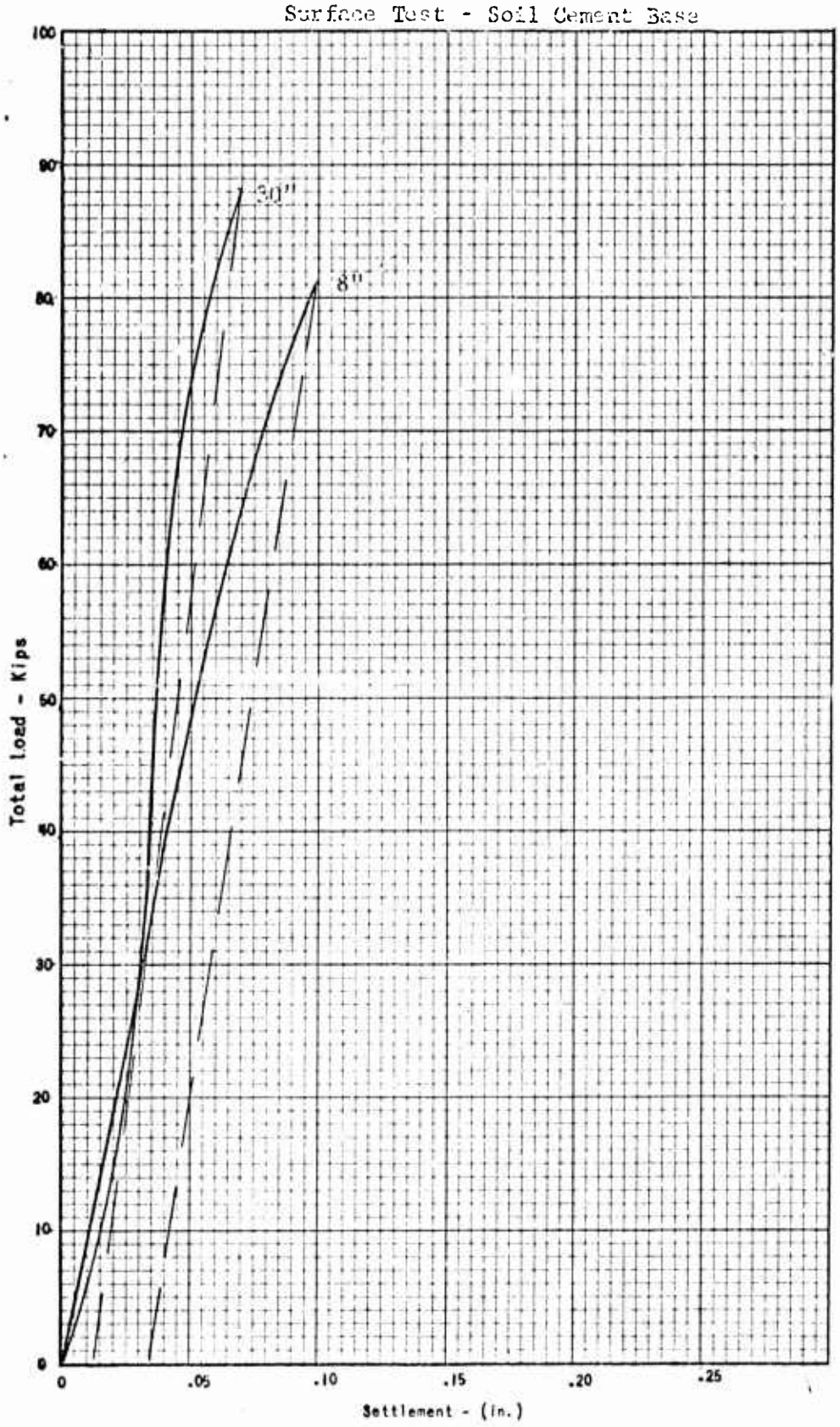
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	50+00

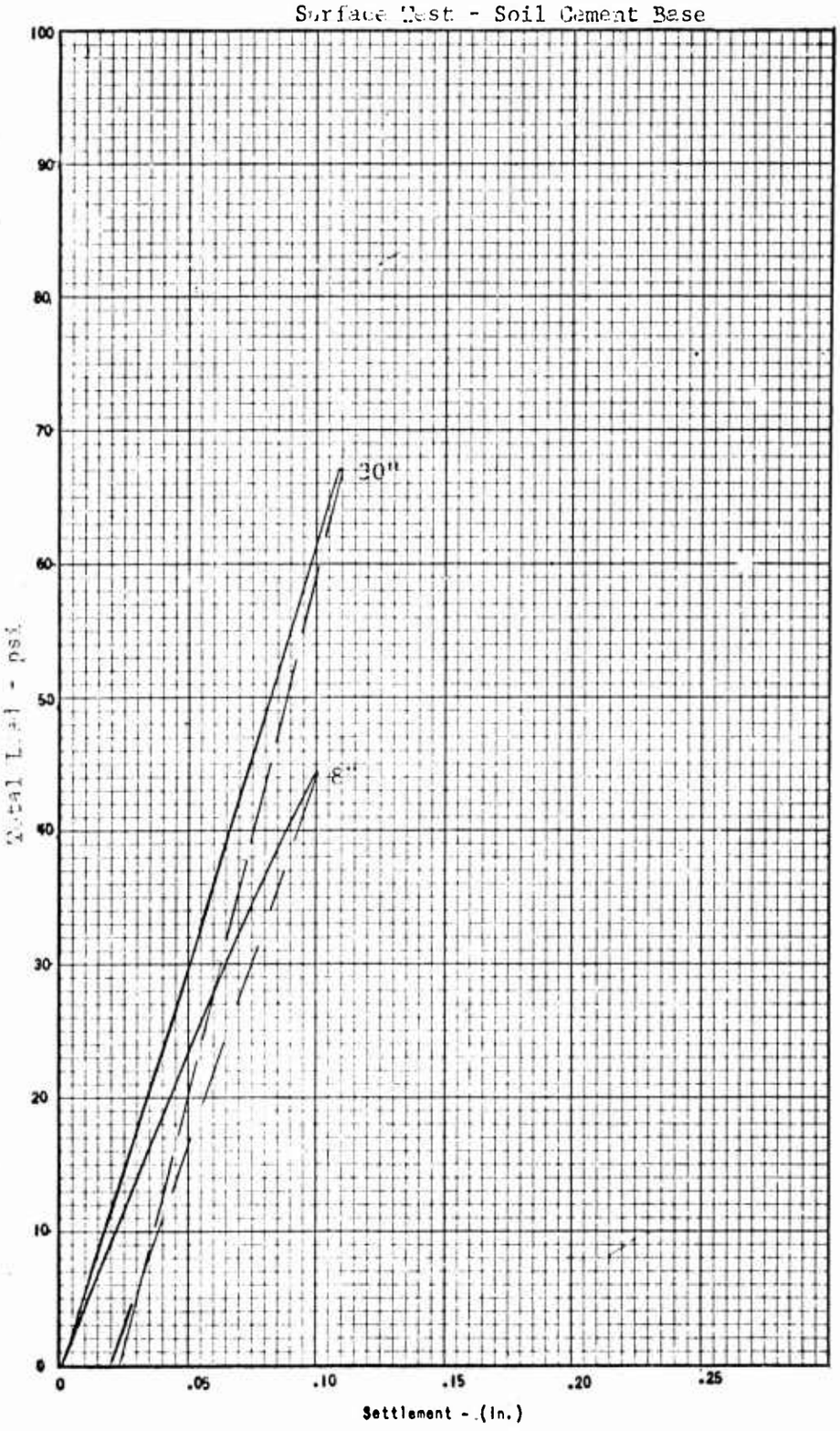
Surface Test - Soil Cement Base



11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	60+00

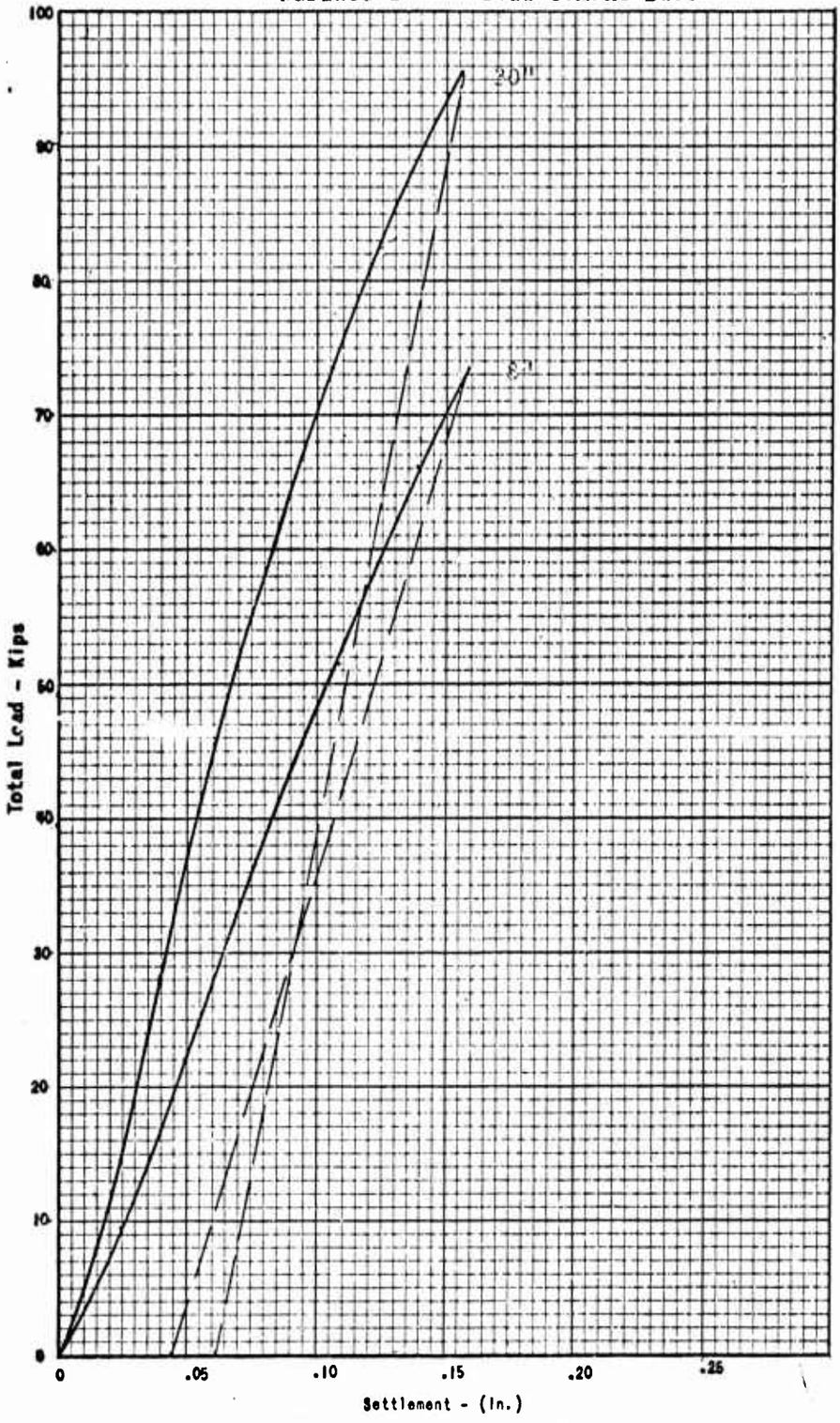
Surface Test - Soil Cement Base



IND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	73+00

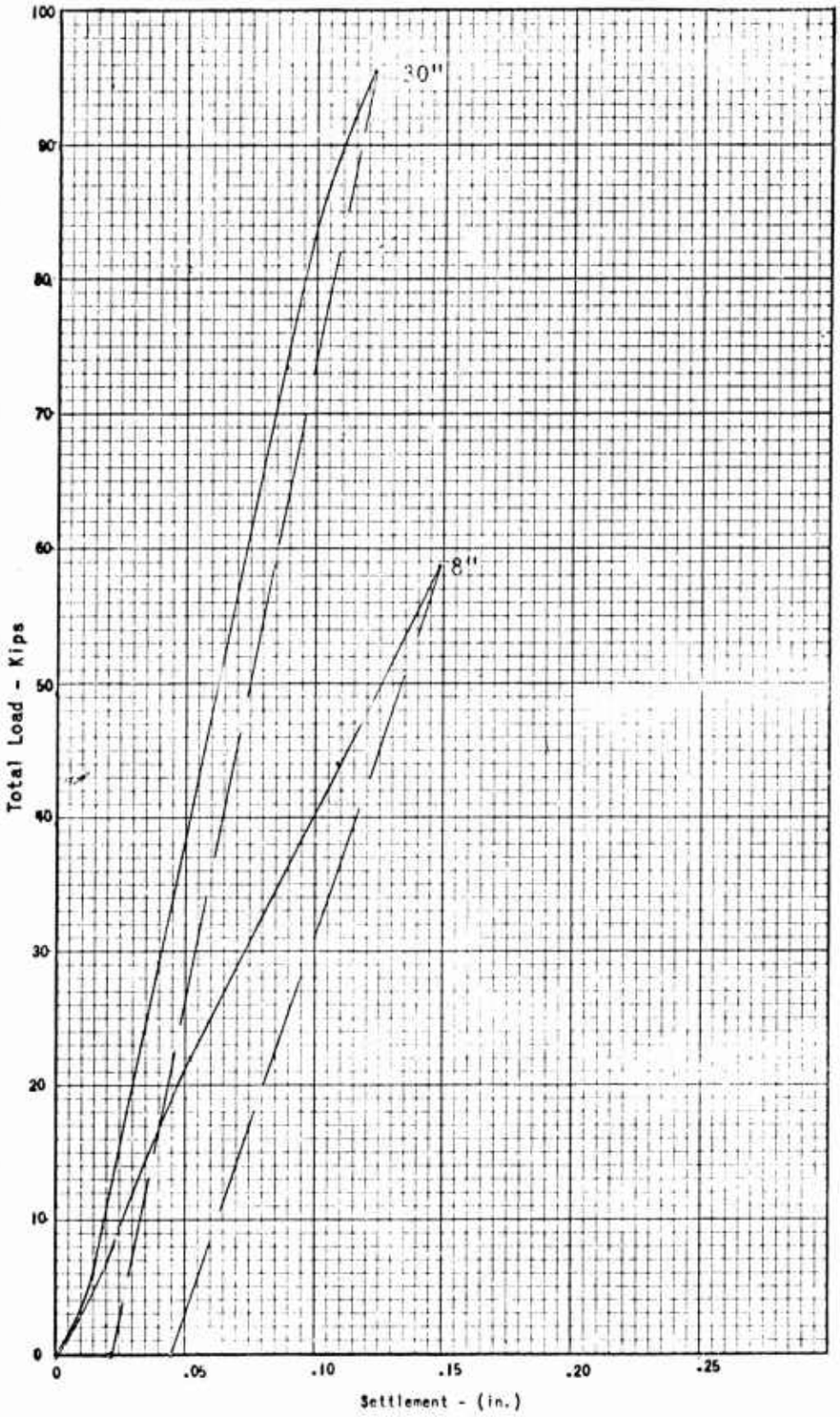
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	83+00

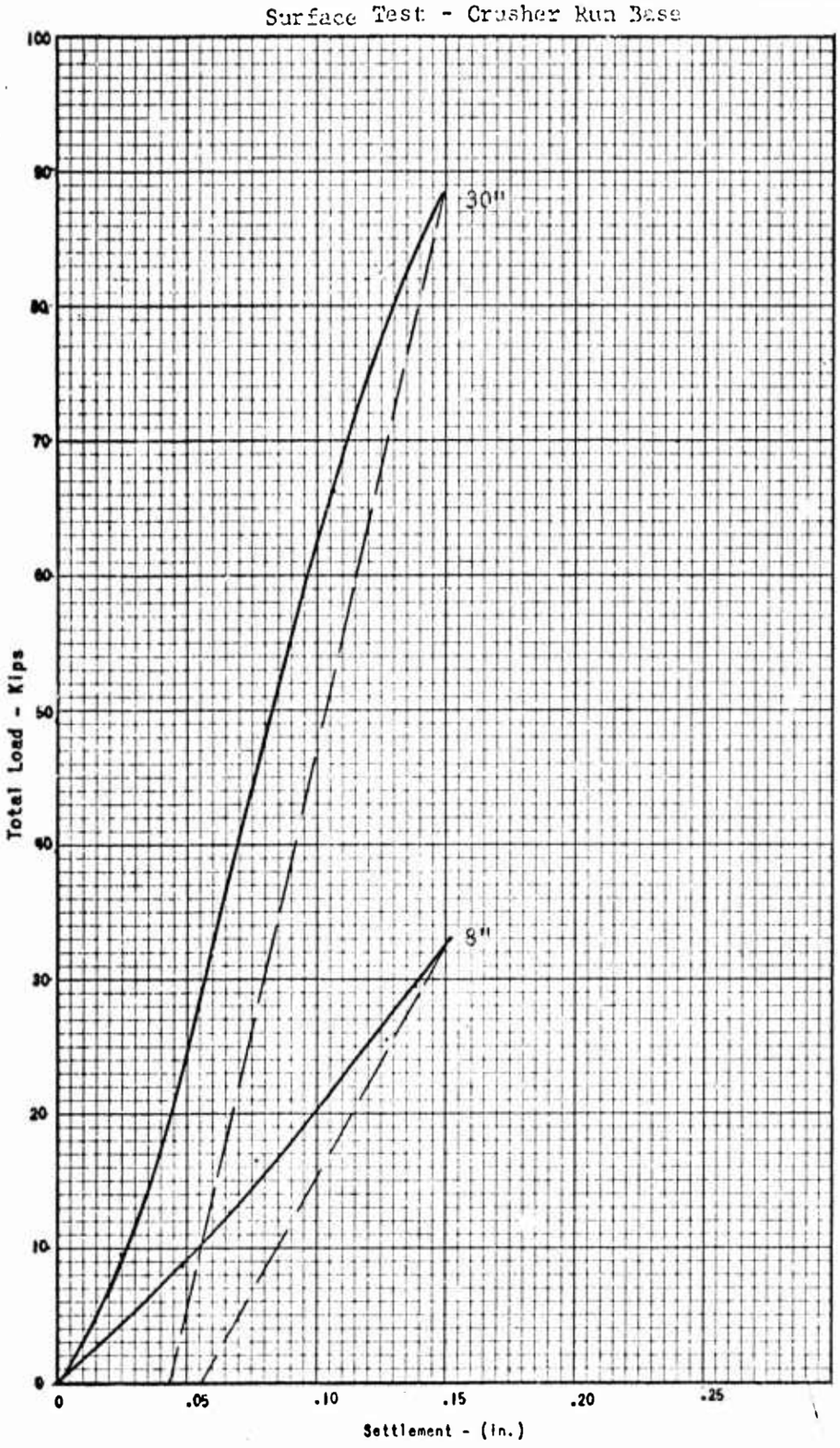
Surface Test - Soil Cement Base



FORM NCEL 3960/20 (1-64) TOTA LOAD vs. DEFLECTION

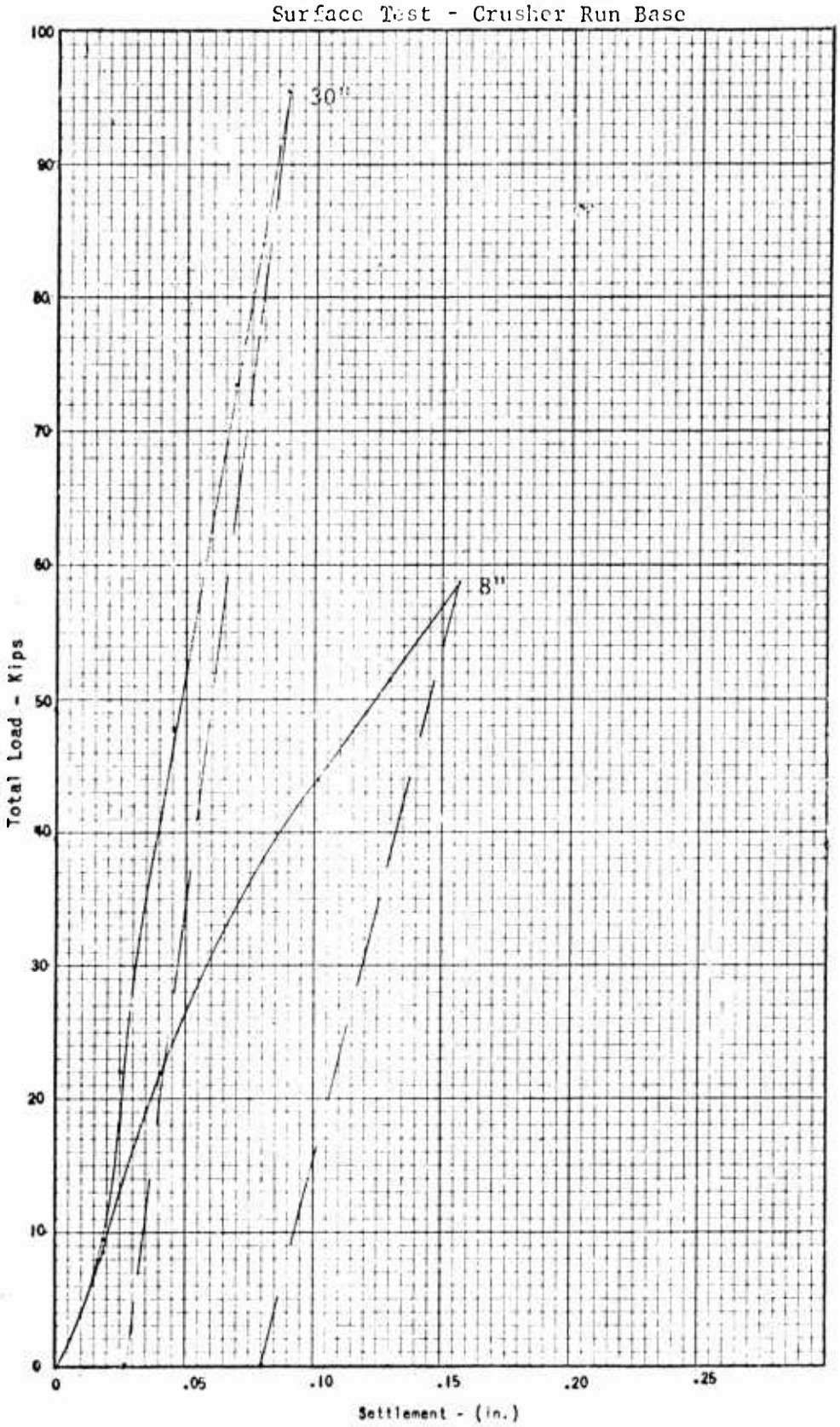
FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	86+00, North end

Surface Test - Crusher Run Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

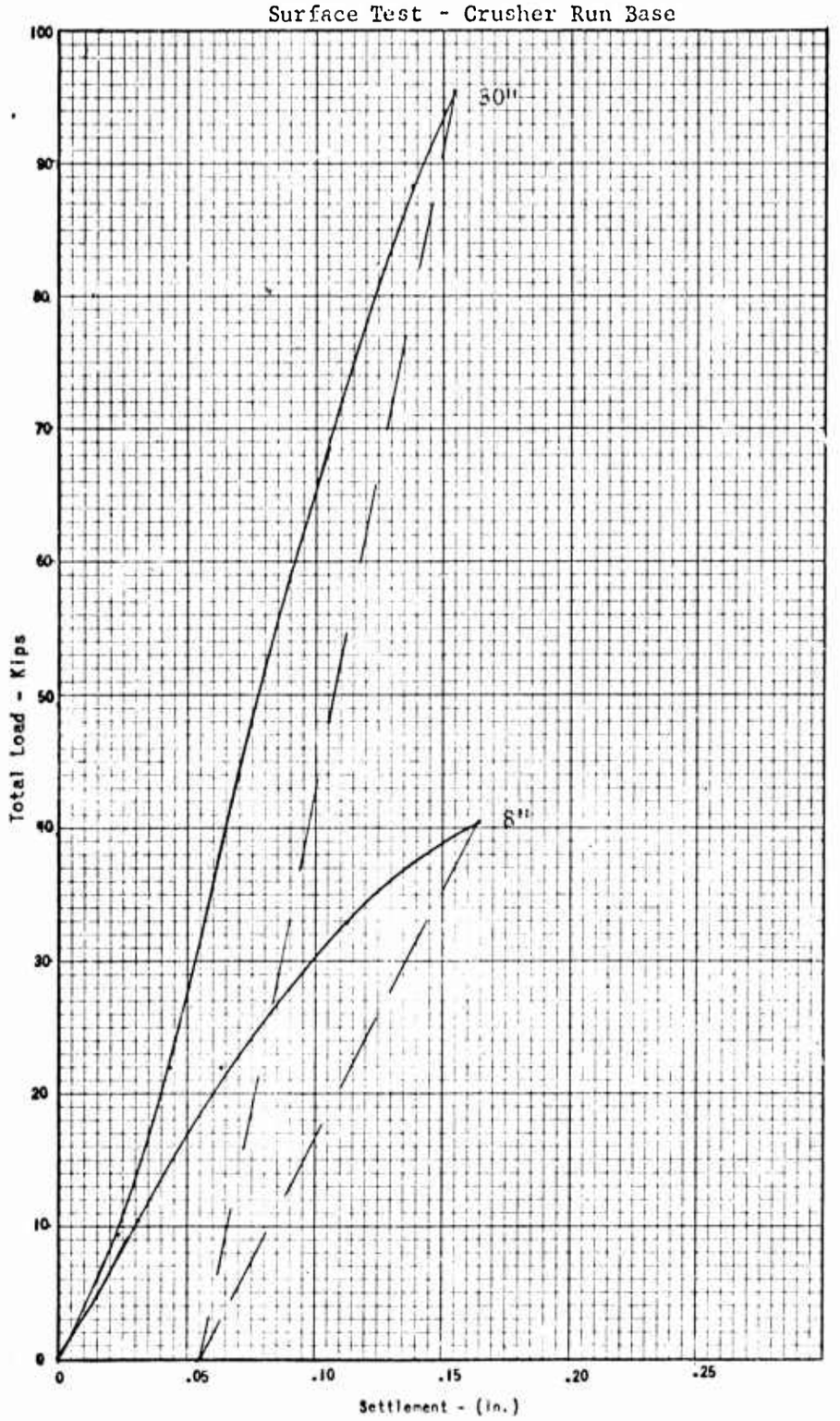
FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 3	14+00



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 3	2 400

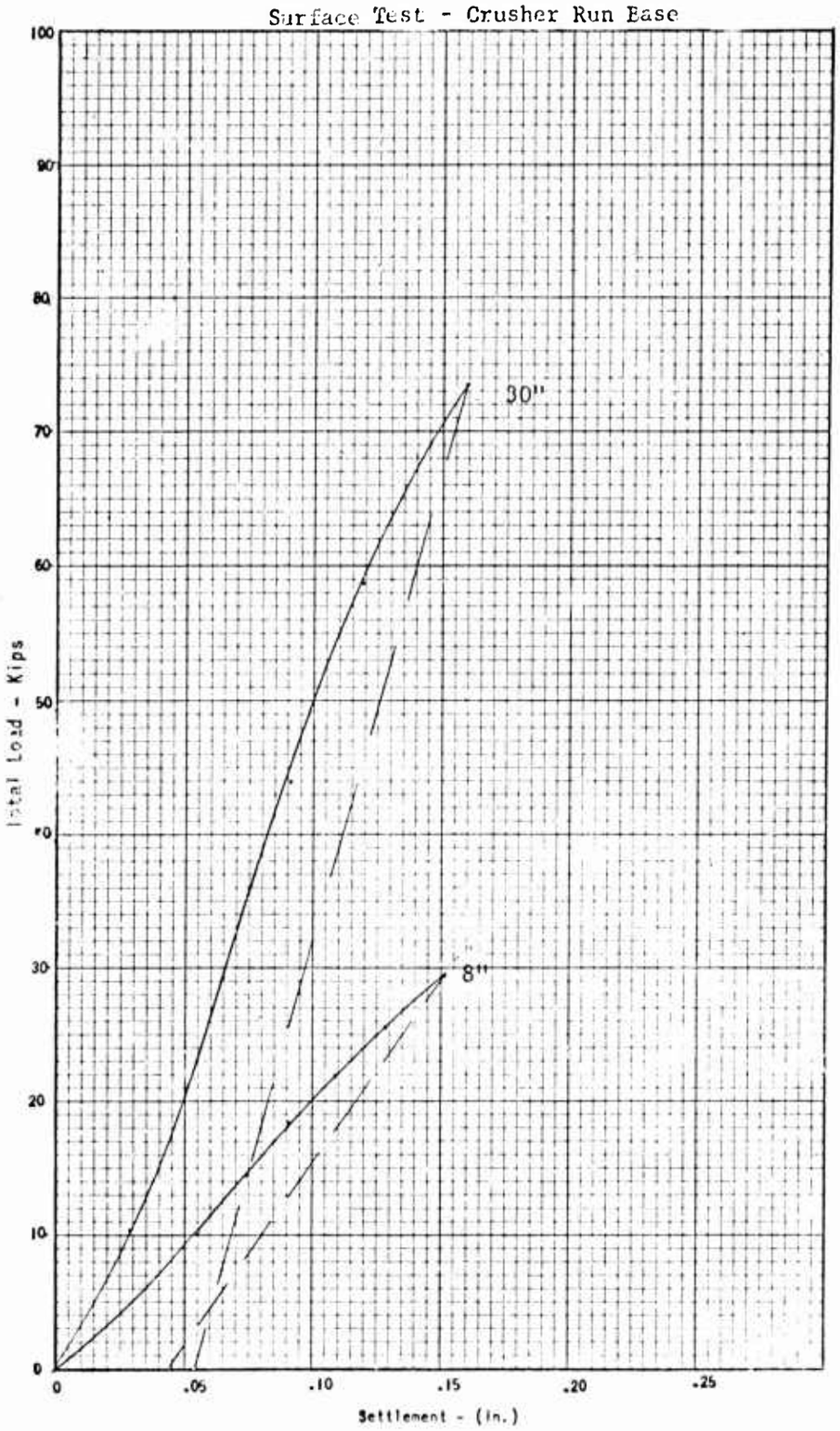
Surface Test - Crusher Run Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 3	36+00

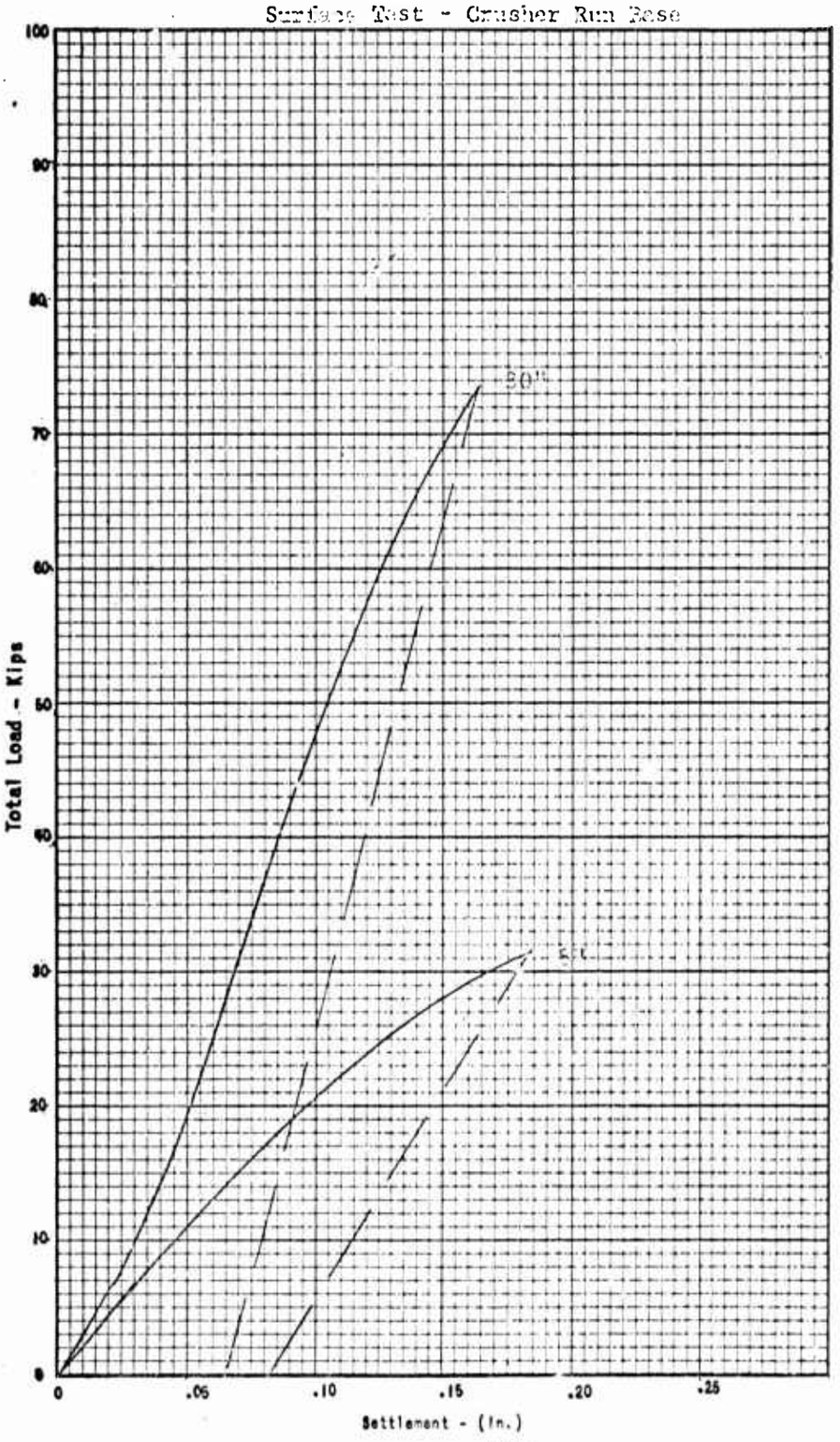
Surface Test - Crusher Run Base



FIND NCEL 3060/20 (1-64) TOTAL LOAD vs. DEFLECTION

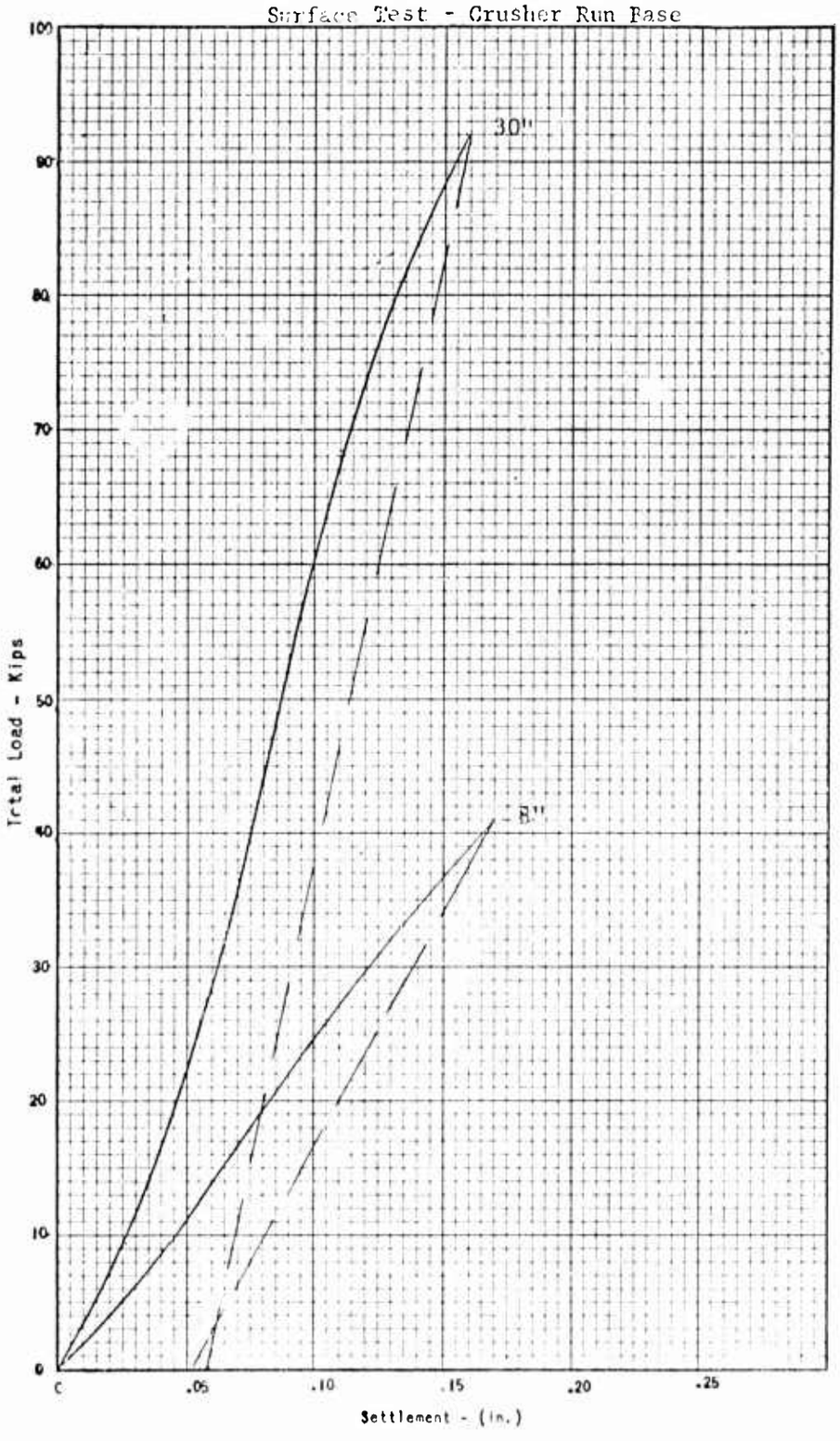
FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 7	10+00

Surface Test - Crusher Run Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

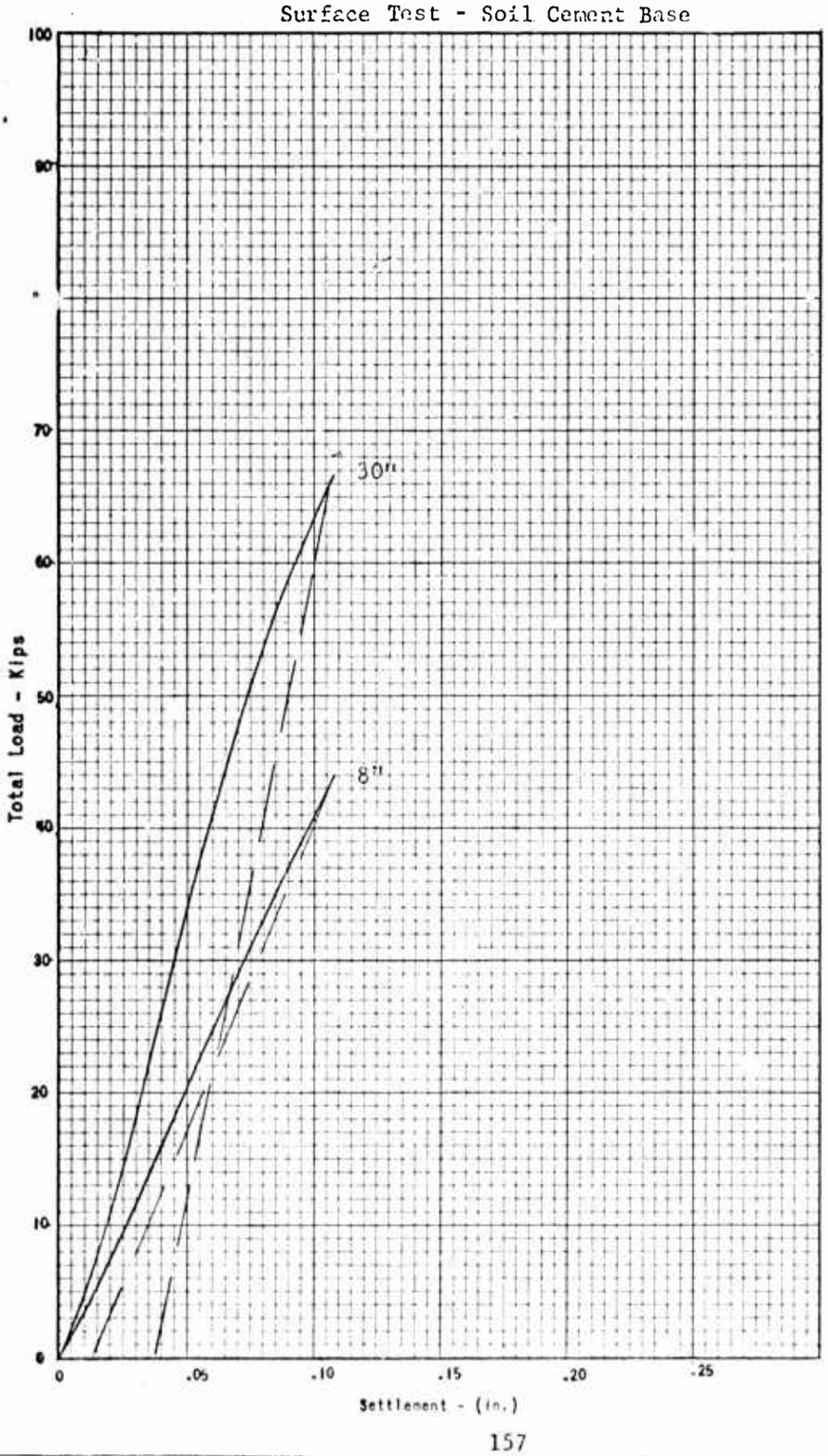
FACILITY	LOCATION	STATION
USNOTS China Lake, California	Taxiway 21	7+00



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 21	18+00

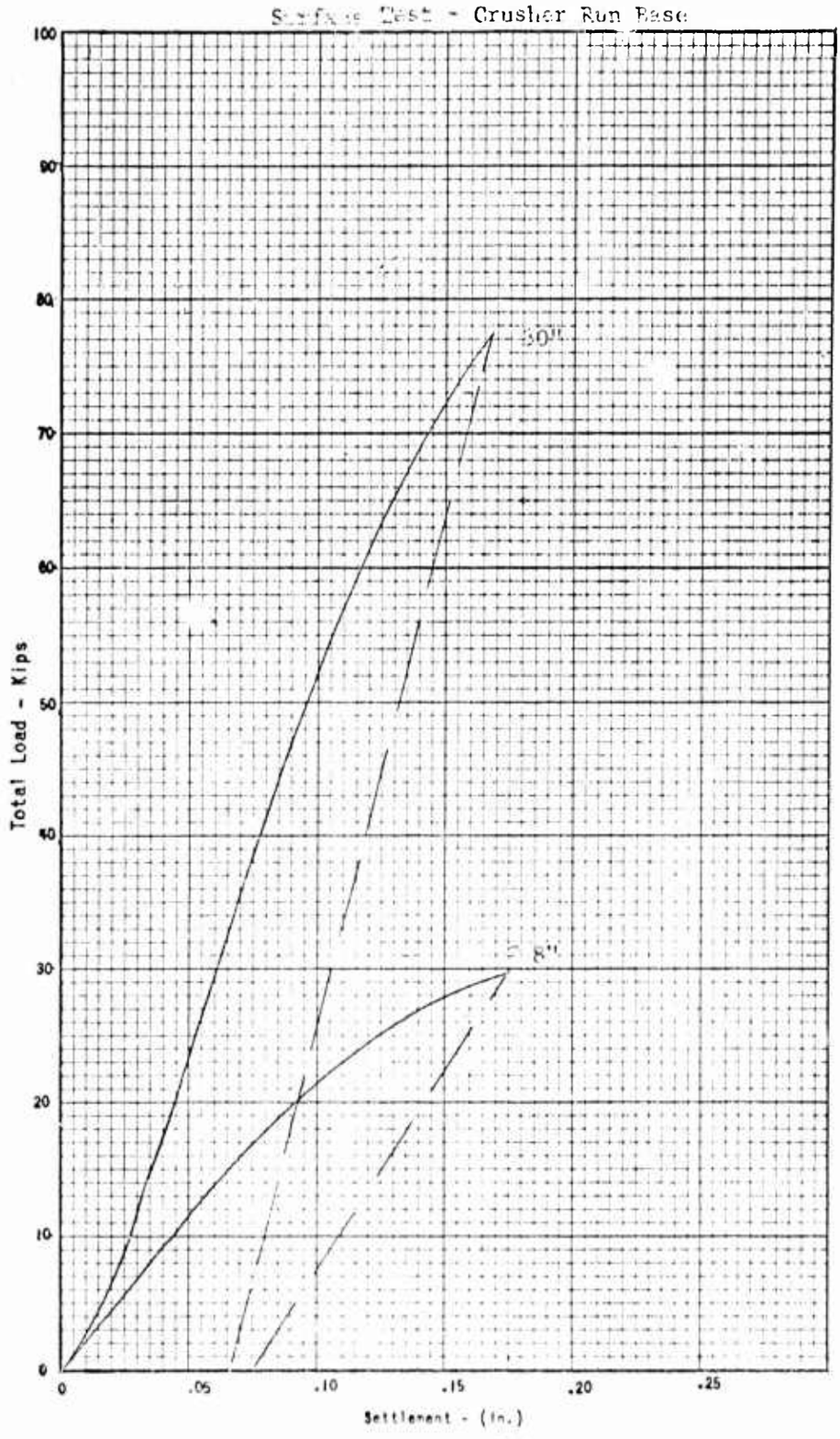
Surface Test - Soil Cement Base



NAVFAC 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAS Lake Jackson, California	Taxiway 25	10+00

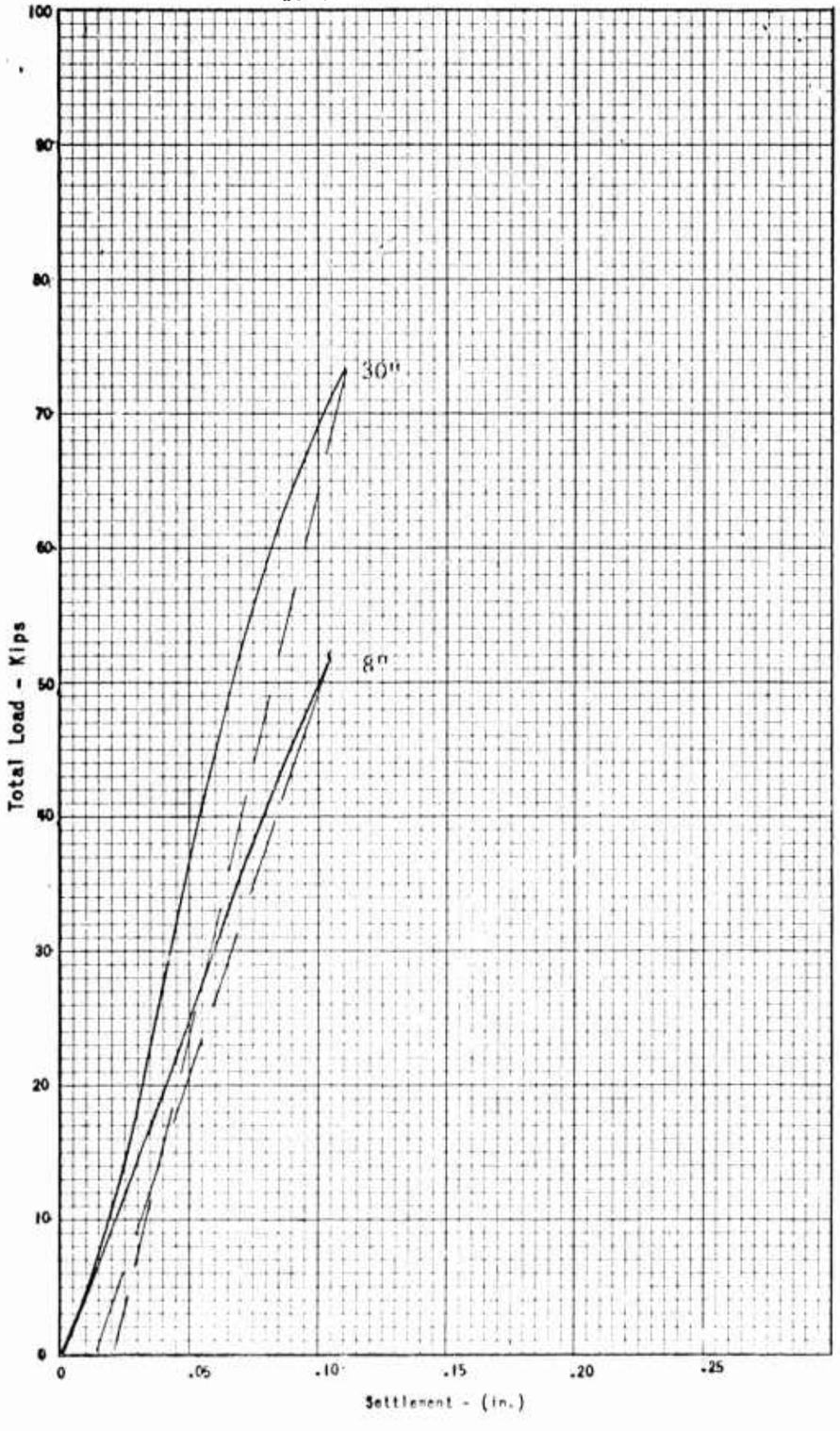
Surface Test - Crushed Run Base



IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Connecting Taxiway A	2+00

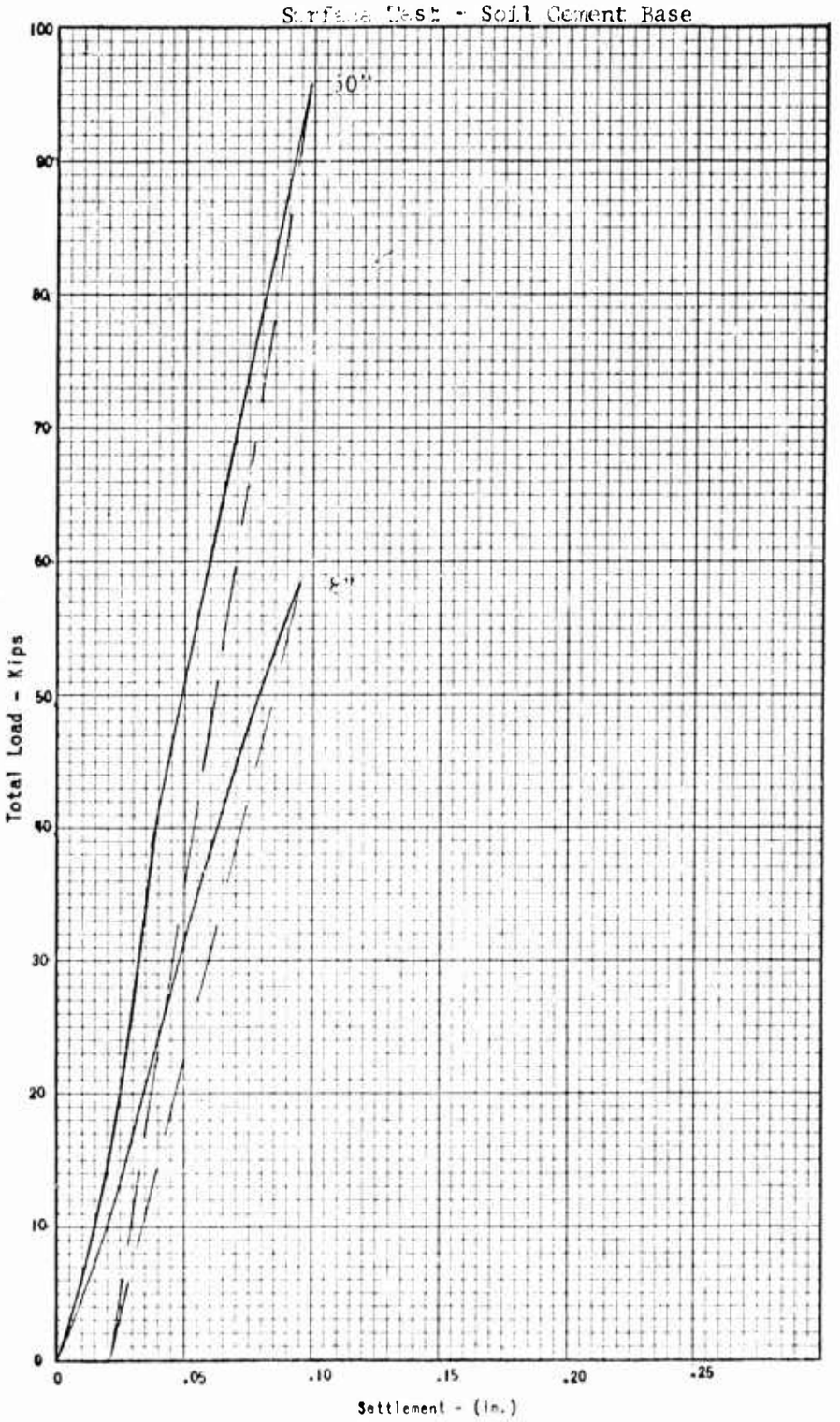
Surface Test - Soil Cement Base



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

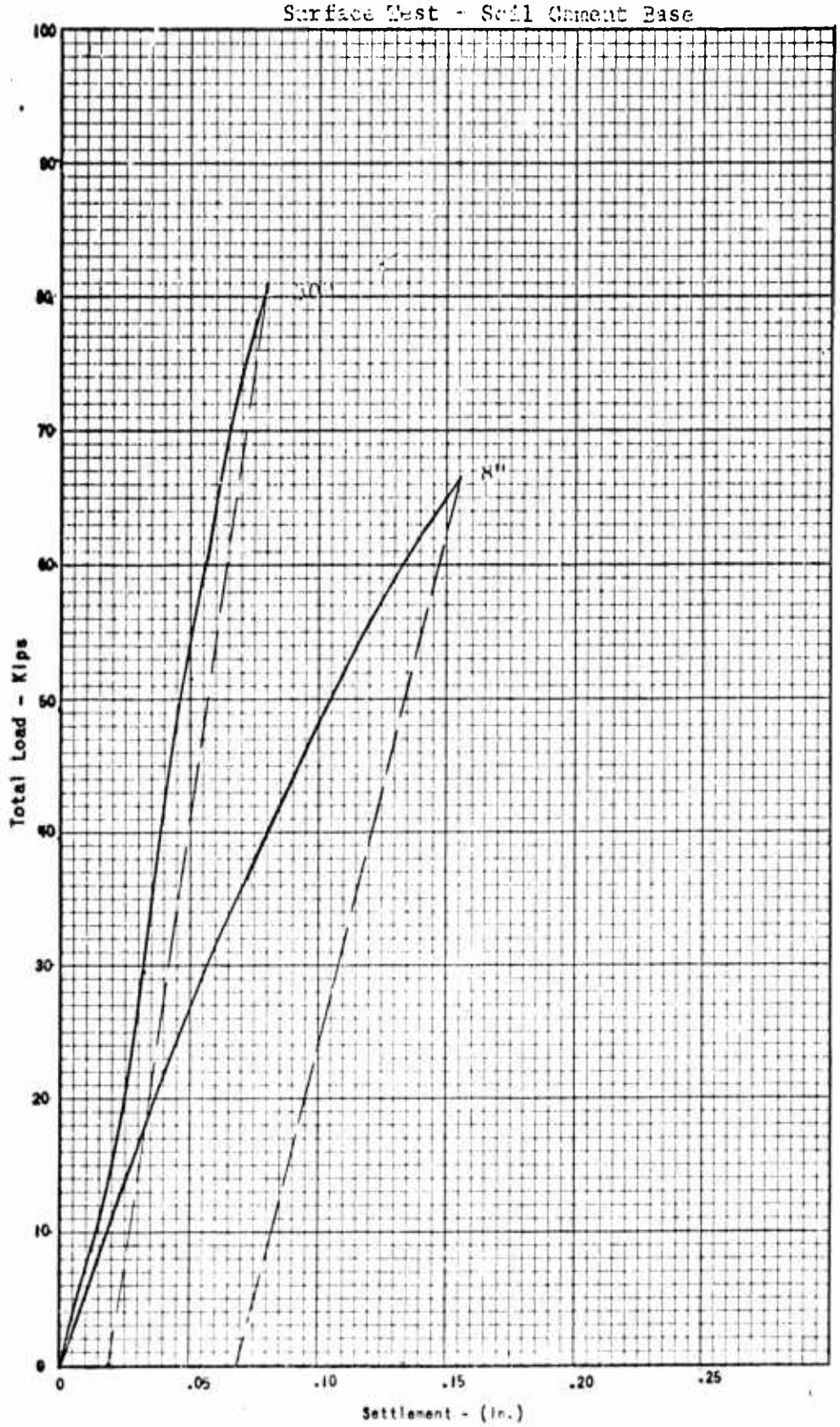
FACILITY	LOCATION	STATION
NSAS [illegible] Lake, California	Connecting Taxiway B	2+00

Surface Test - Soil Cement Base



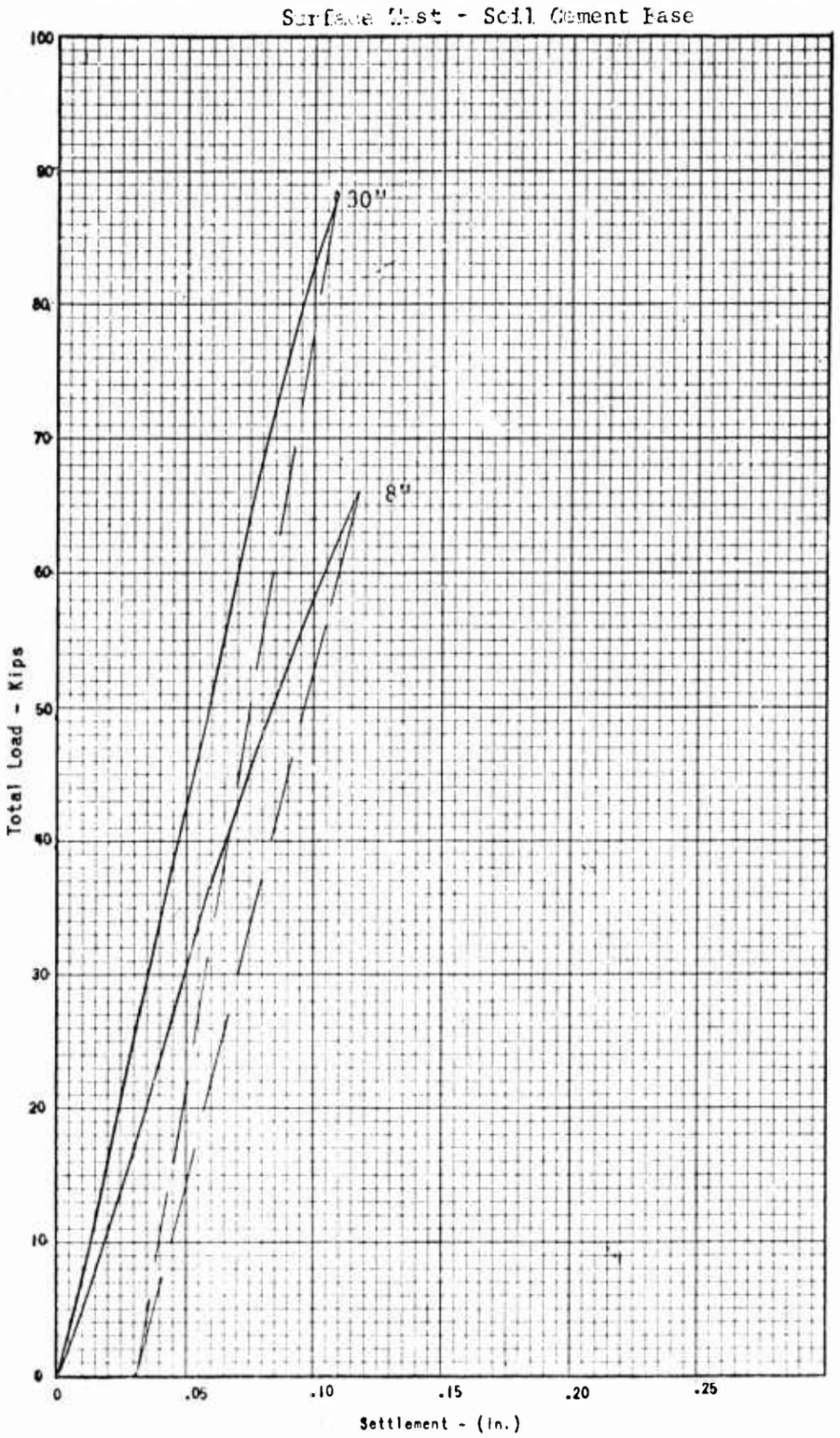
IIND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Connecting Taxiway C	2+00



NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Connecting Taxiway	D 4+00



Appendix E

ALLOWABLE AIRCRAFT GEAR LOADS

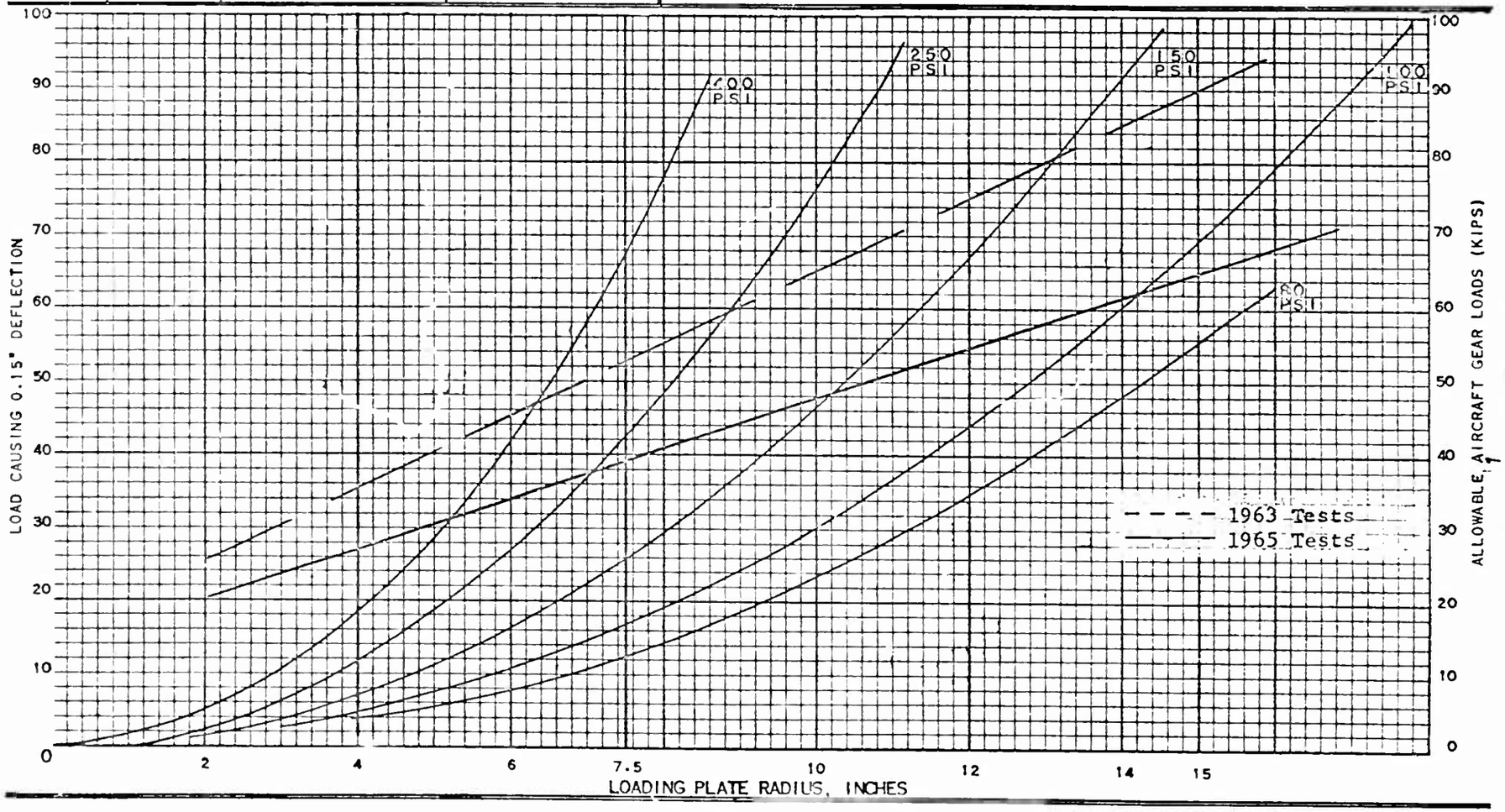
NAVFAC-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
NAF China Lake, California	Runway 3-21, Crusher Run Base, 5+00-25+00	12 Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
49	31	64	96

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



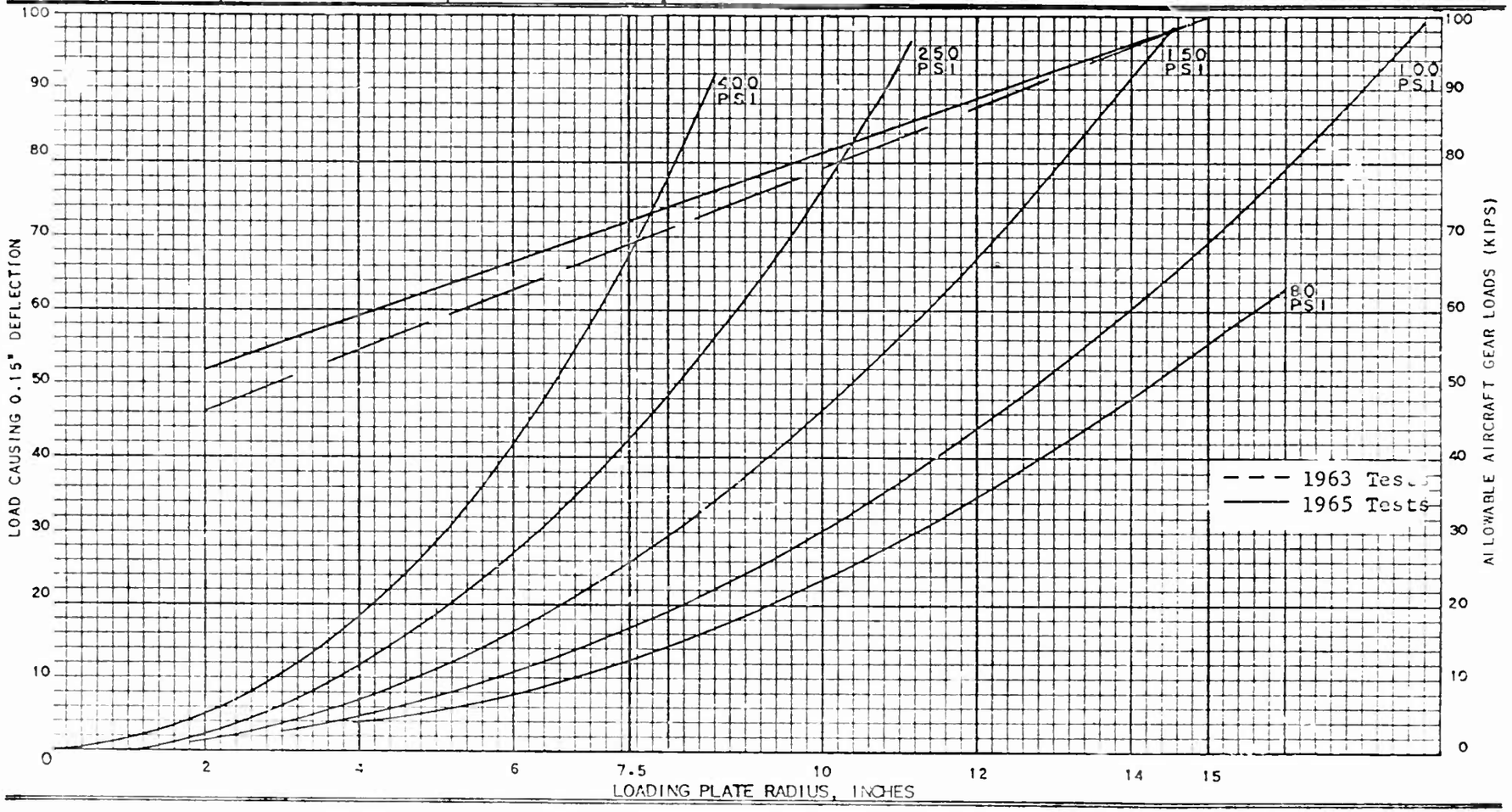
NAVFAC-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Runway 3-21, Soil Cement Base, 34+75--100+00	12 Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
98	73	127	191

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS

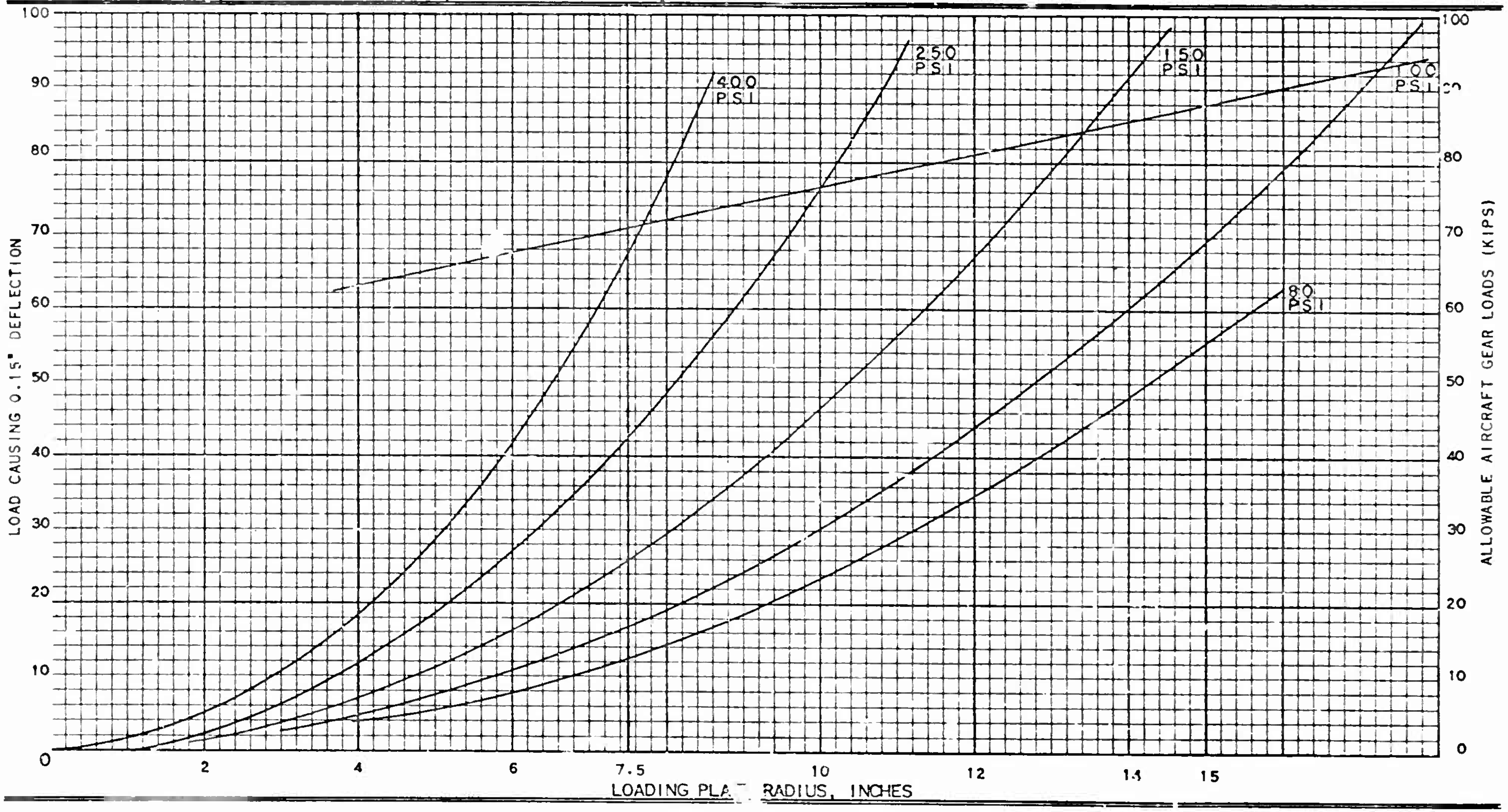


11ND-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Runway 7-25, Soil Cement Base	Jan 66

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)			
SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		



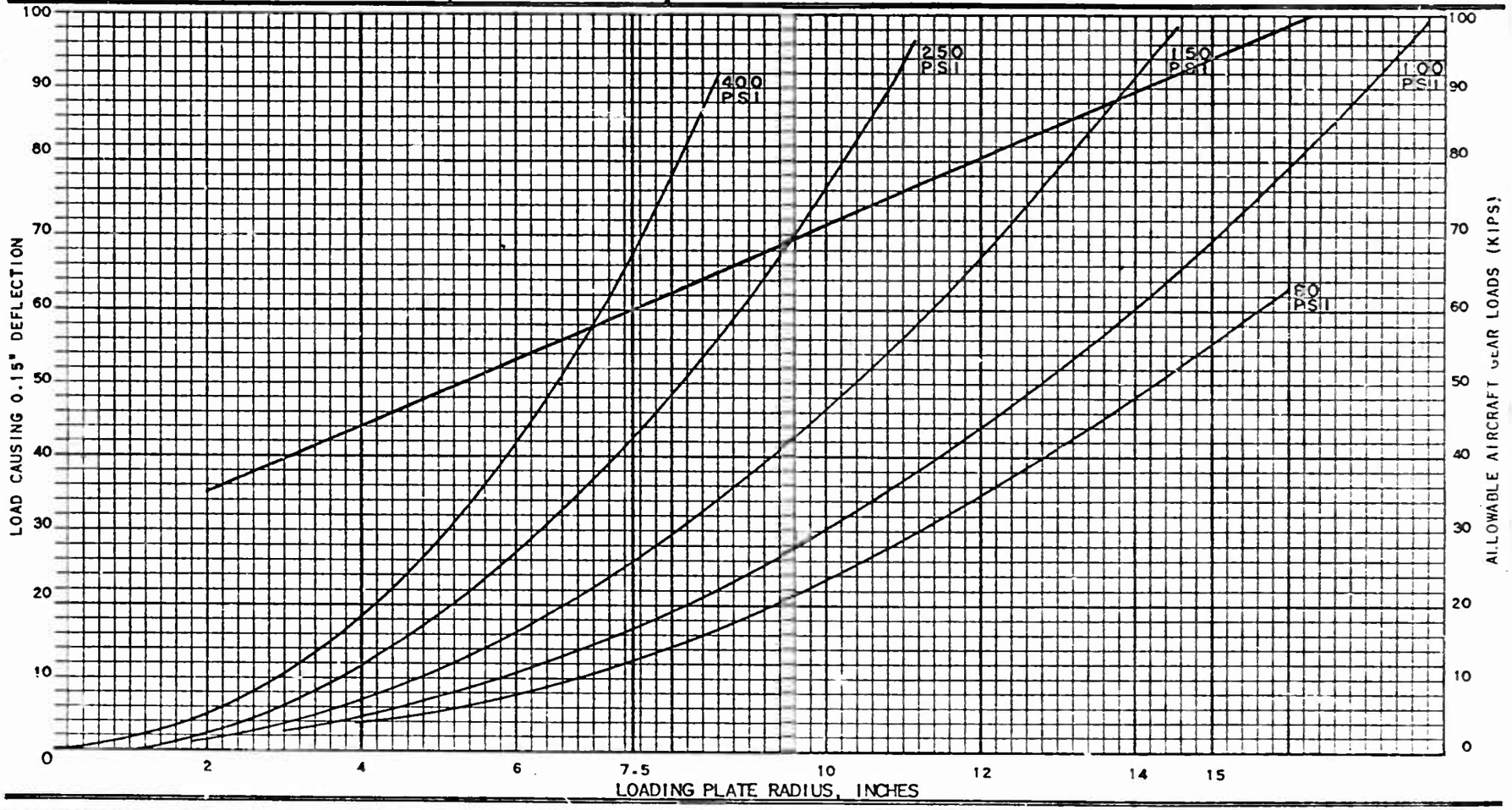
NAVFAC-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Runway 14-32, Soil Cement Base	12 Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
88	58	114	172

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



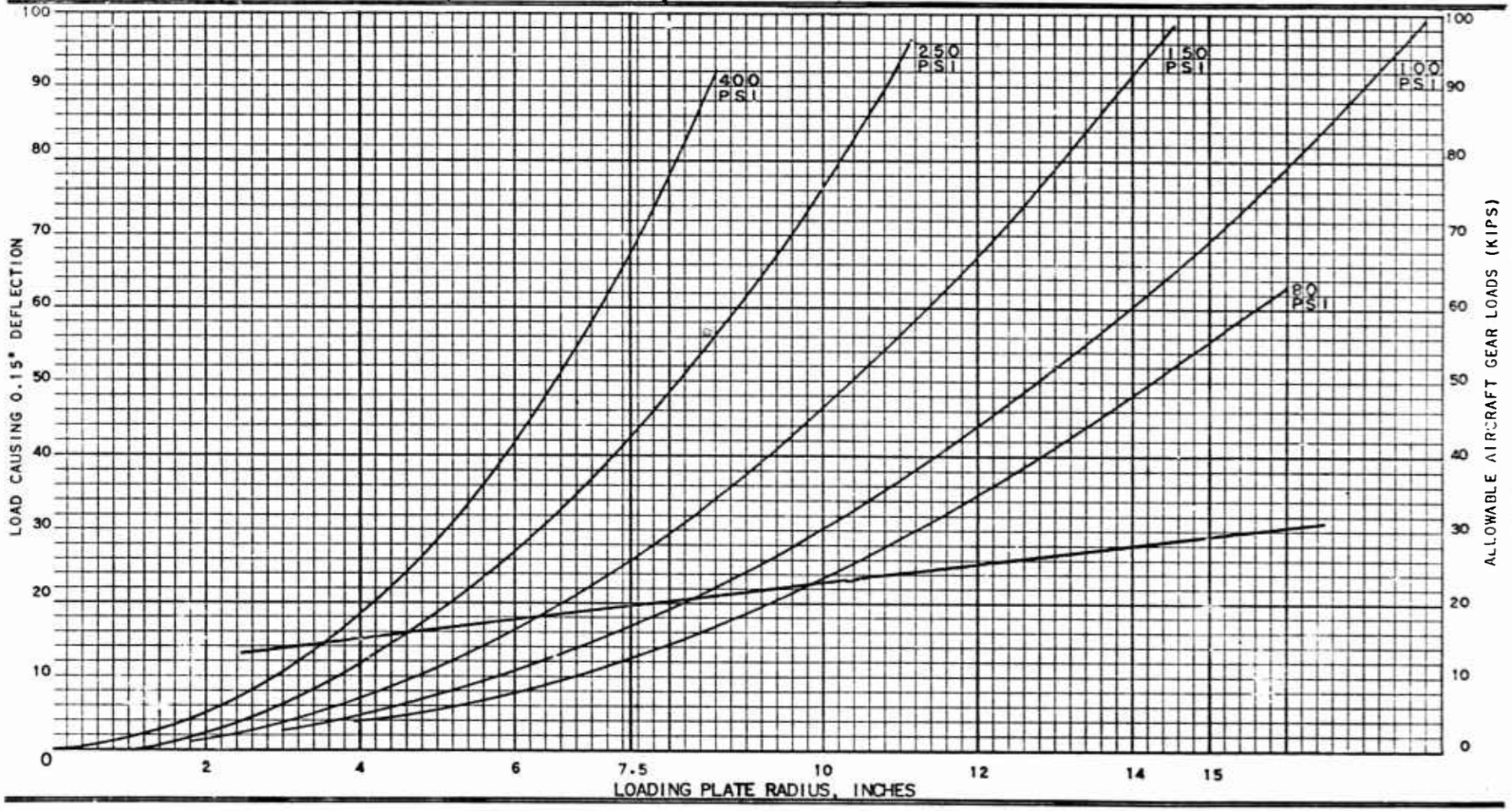
NAVFAC-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Taxiway 14-32, South End, 5+25--13+50 Runway 14-32	12 Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR	DUAL TANDEM GEAR
150 PSI TIRES	400 PSI TIRES	SWG X 1.30 150 PSI	SWG X 1.95 150 PSI
[illegible]	14.0	20	35

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



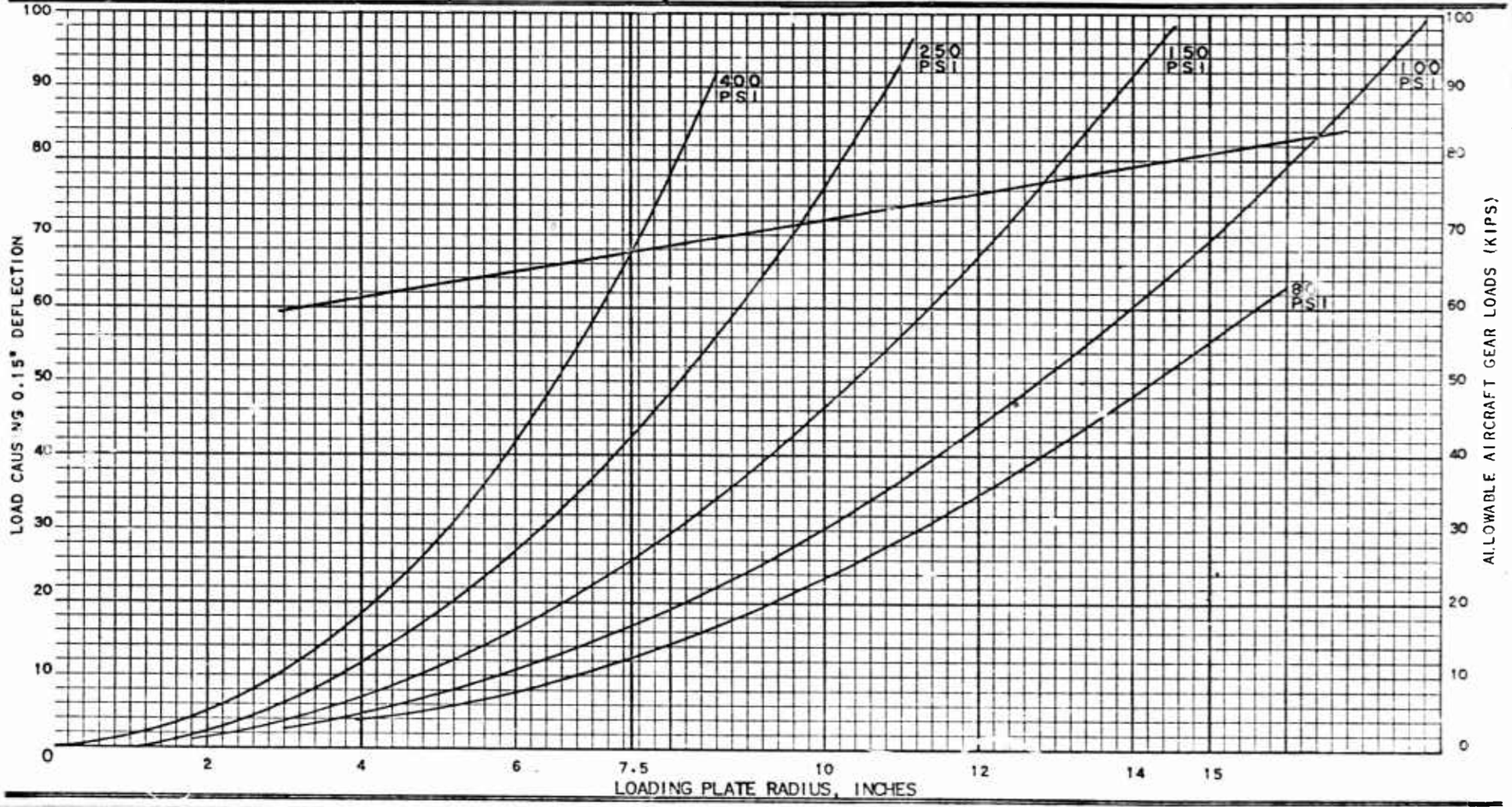
NAVFAC-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Taxiway 14-32, Soil Cement Base, 13+50--84+00	12 Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
77.0	67.5	100.1	150.2

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



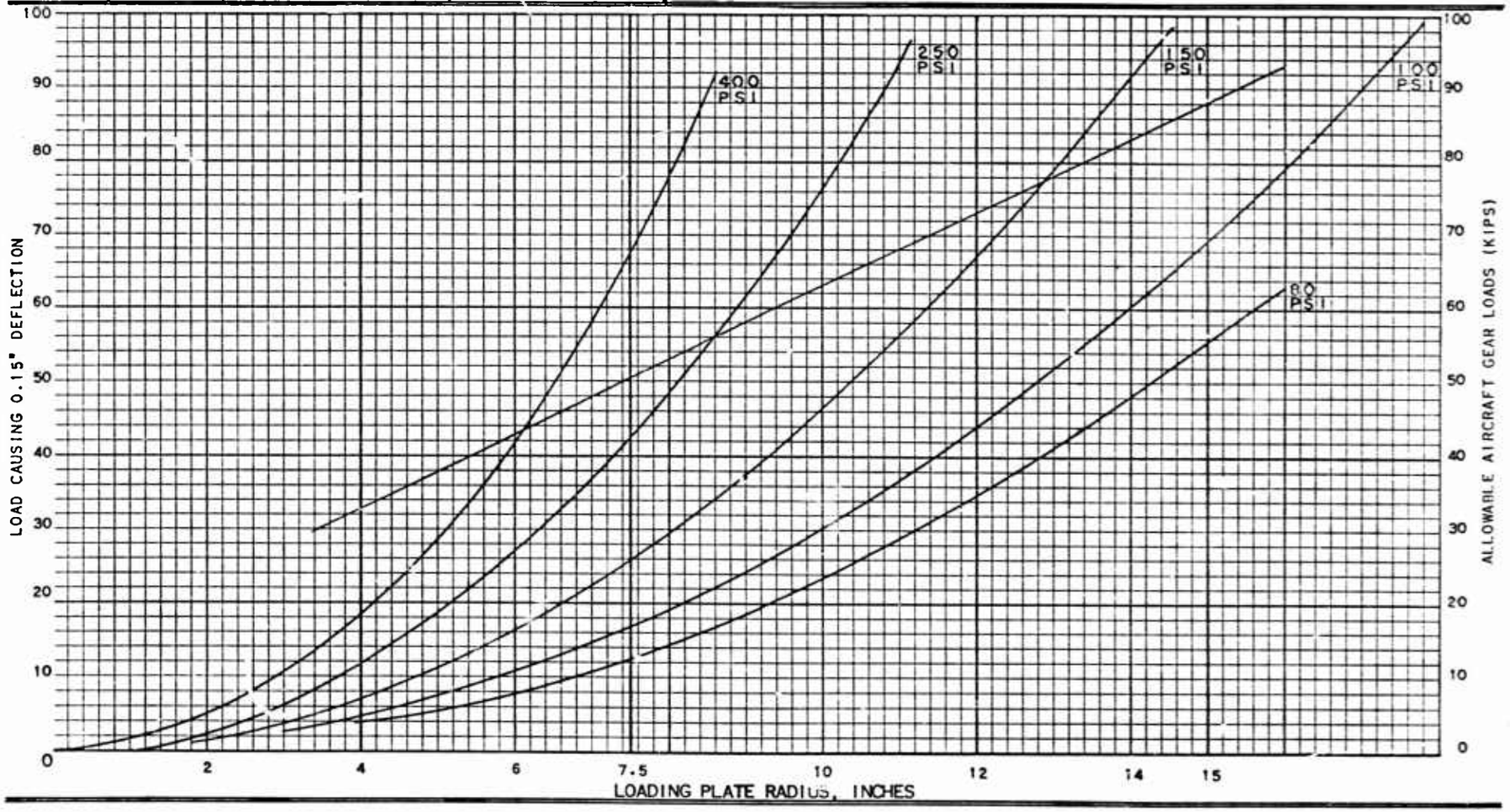
NAVFAC-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
NWC China Lake, California	Taxiway 14-32, North End, 84+00--90+00 Flashlight Run Base	12 Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
78	43.0	101	152

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS

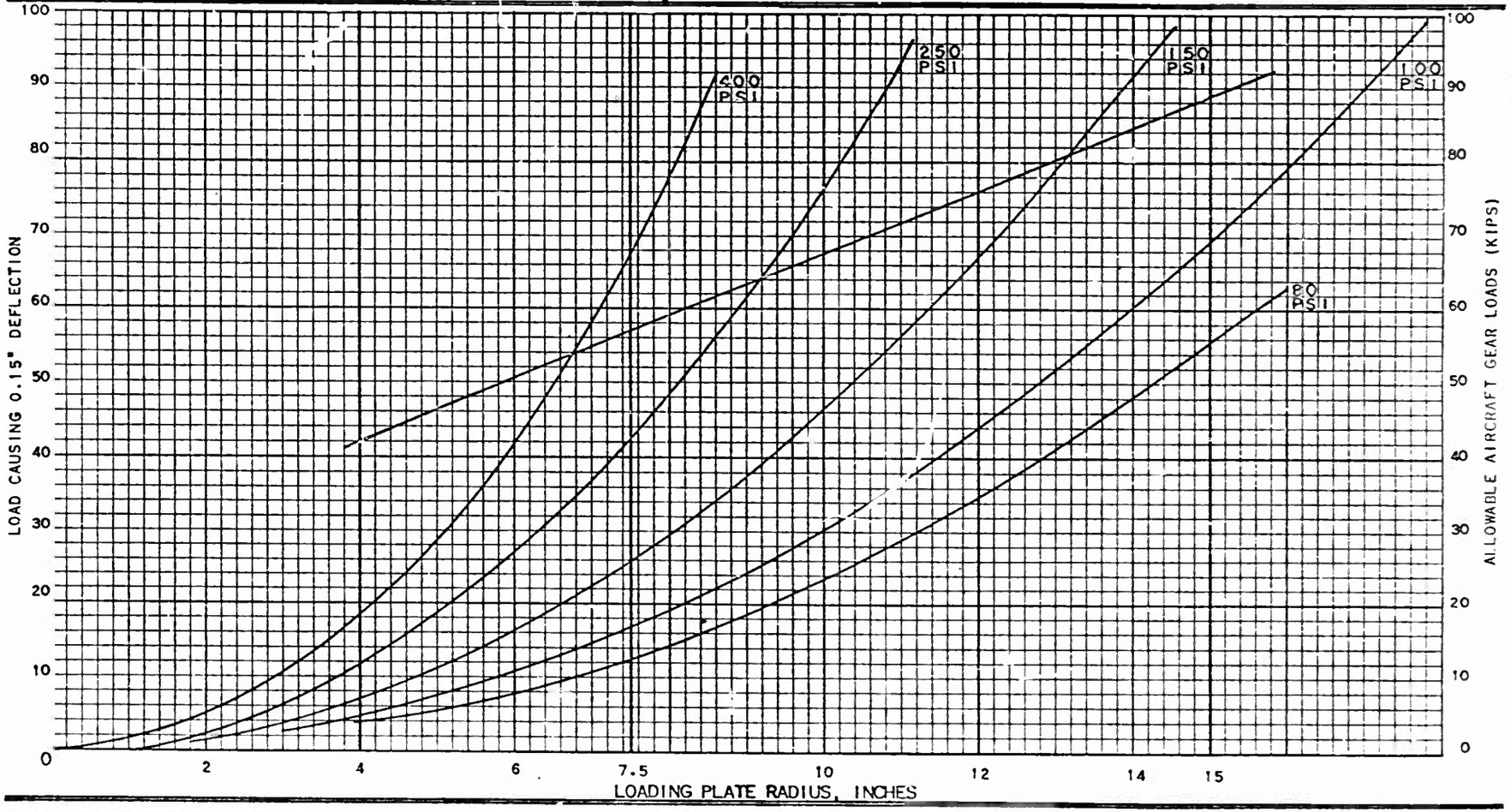


FACILITY	LOCATION	DATE
USNAF China Lake, California	Taxiway 3	Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
81.0	54.0	105	158

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS

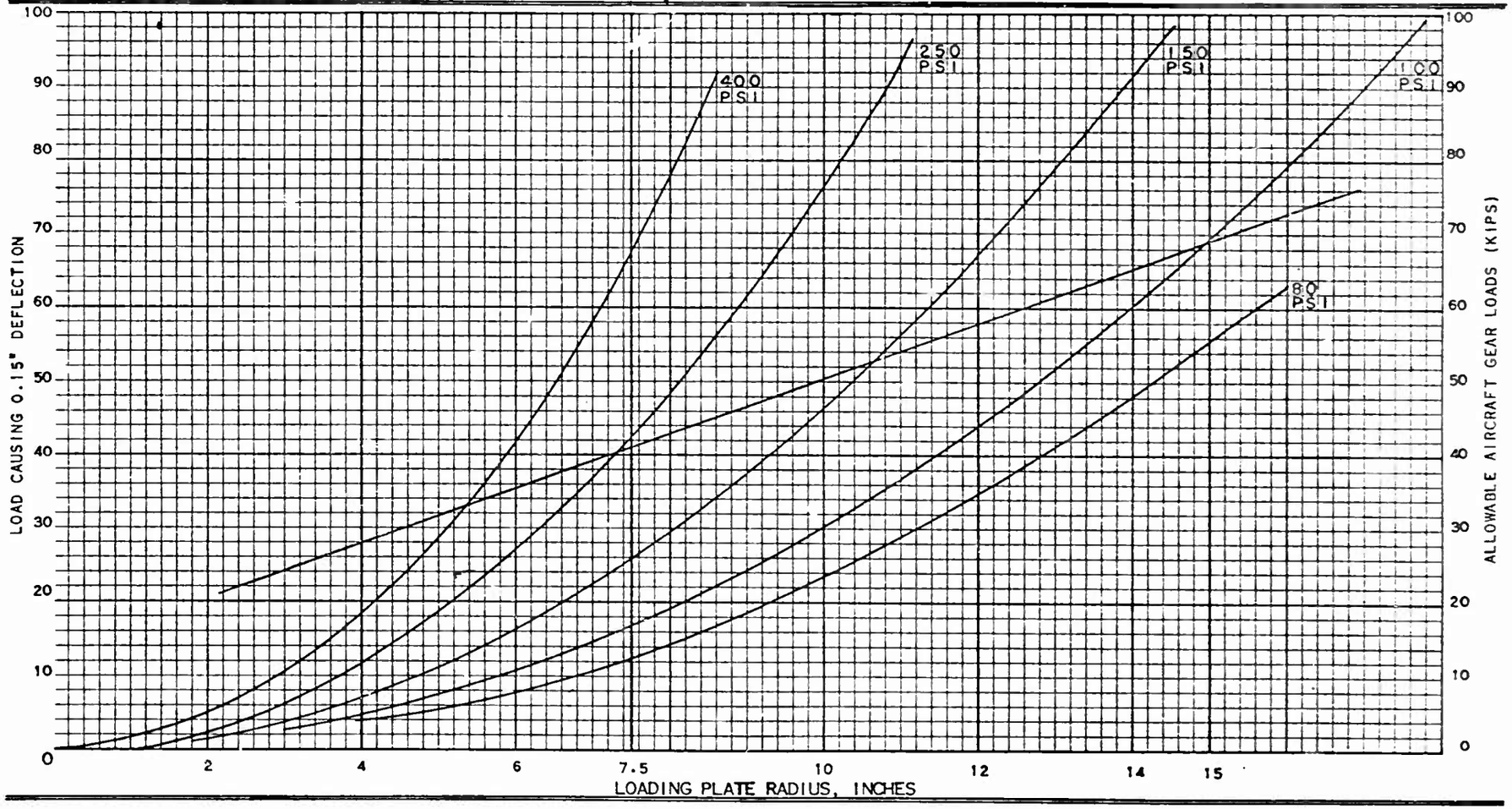


FACILITY	LOCATION	DATE
USNAW China Lake, California	Taxiway 7	12 Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30	DUAL TANDEM GEAR SWG X 1.95
150 PSI TIRES	400 PSI TIRES	150 PSI	150 PSI
[illegible]	[illegible].0	[illegible].0	10[illegible].0

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



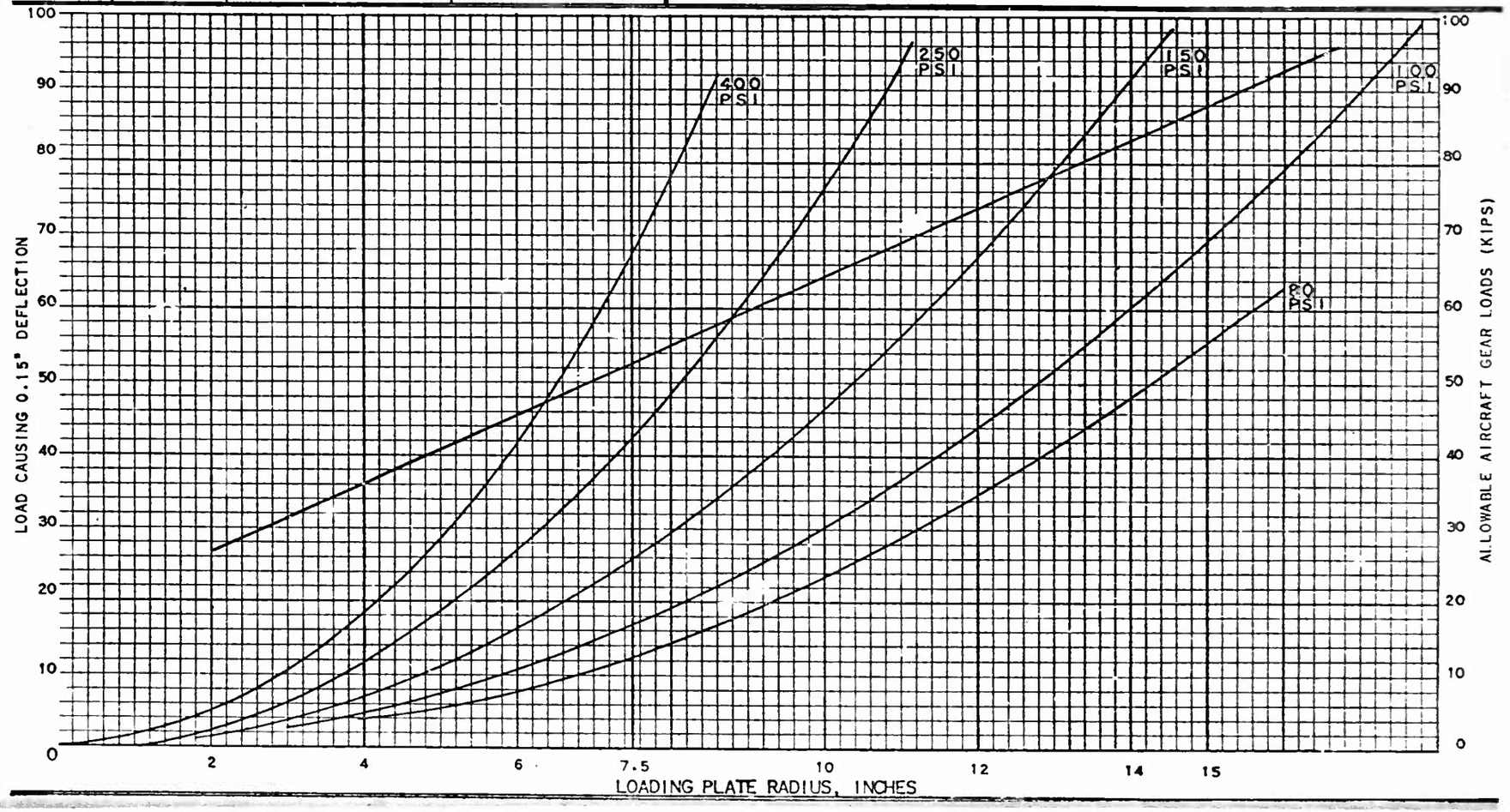
NAVFAC-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Taxiway 21	Jan 56

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
78	47	102	152

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



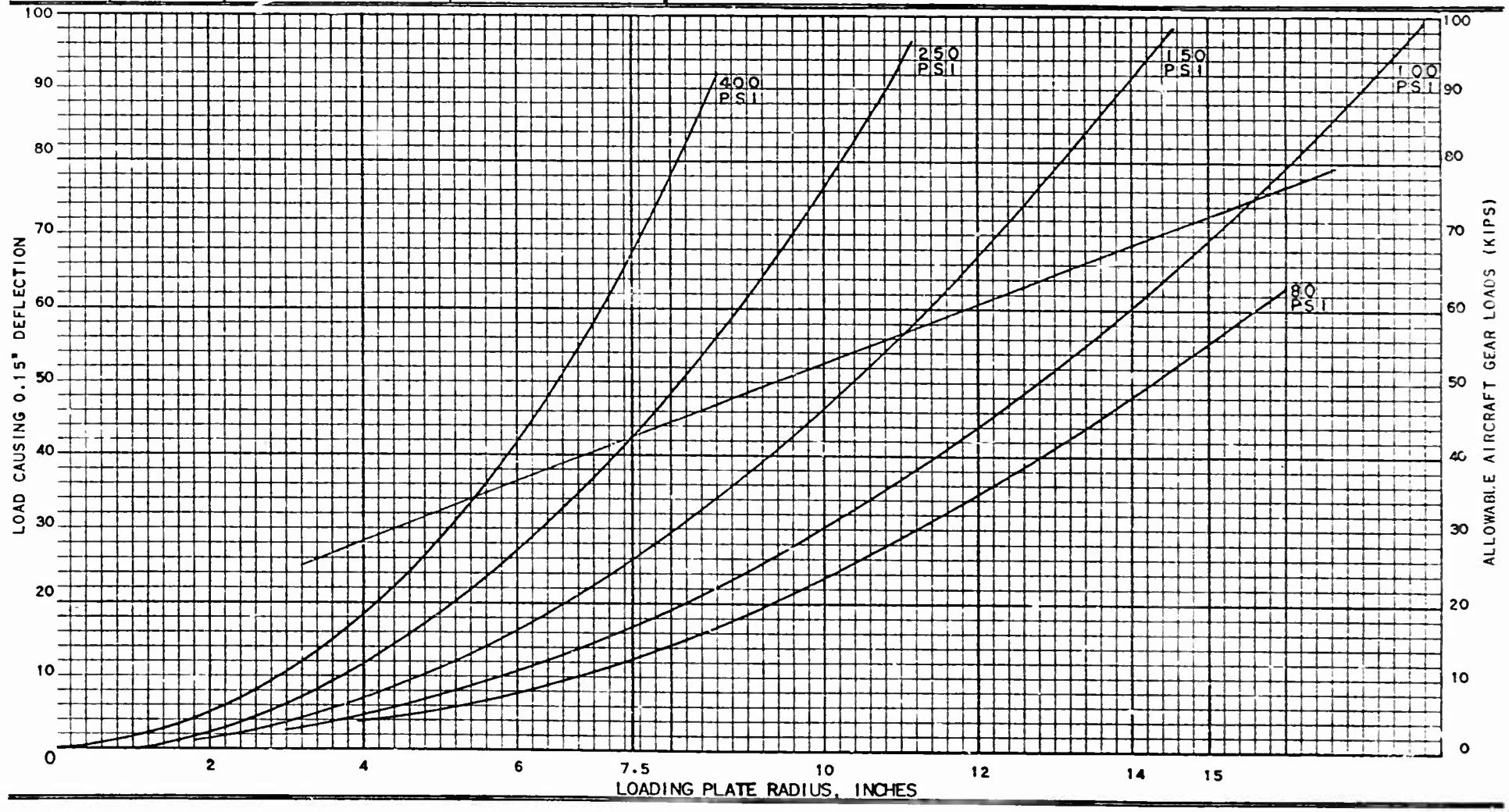
IIND-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
[illegible]	Wesleyan 25	12 Jan 6[illegible]

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
[illegible].0	[illegible].3	[illegible].[illegible]	109.2

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



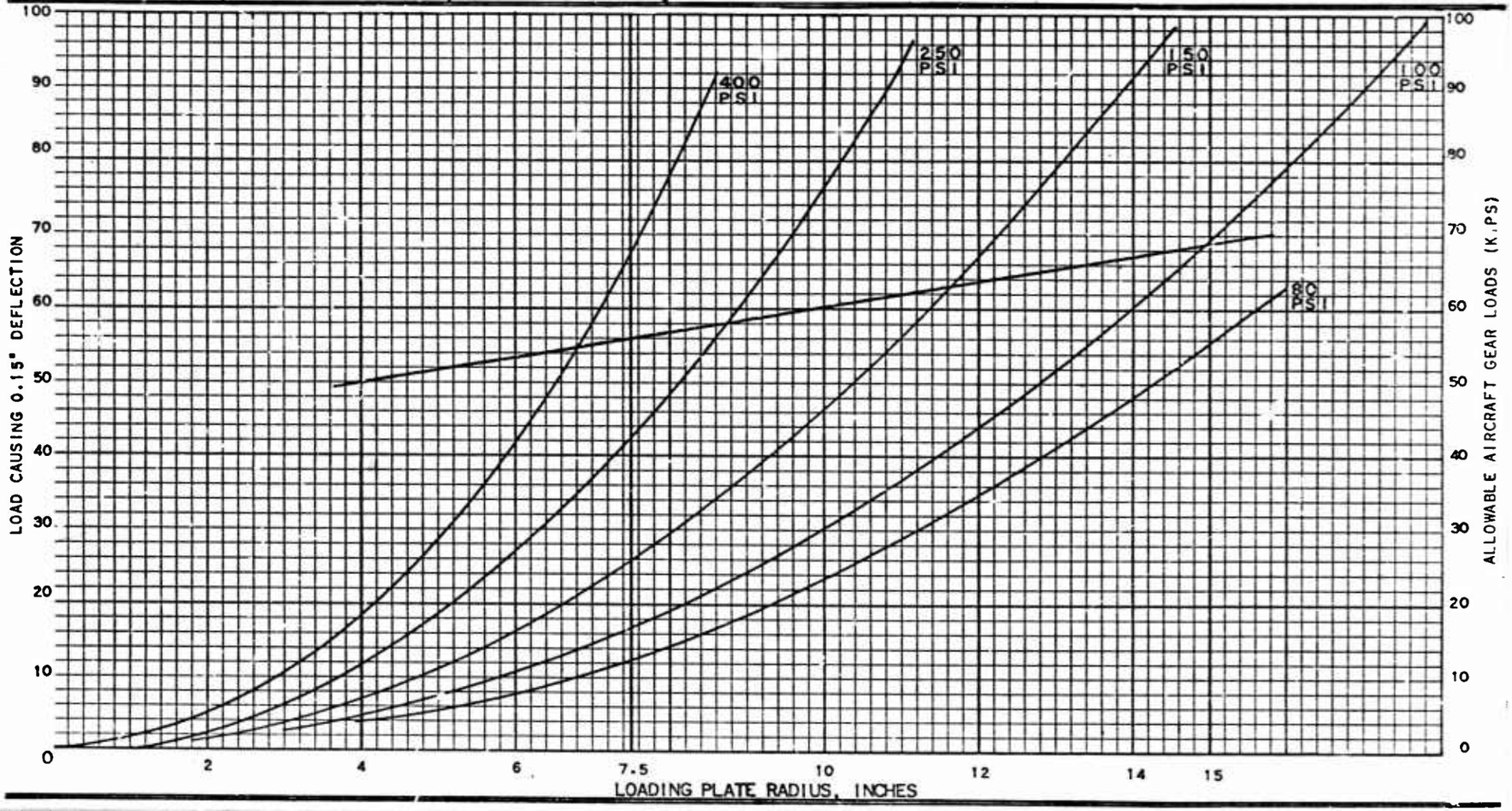
NAVFAC-NCEL-9960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Connecting Taxiway A, Soil Cement Base	Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
63.0	55	82.0	123

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



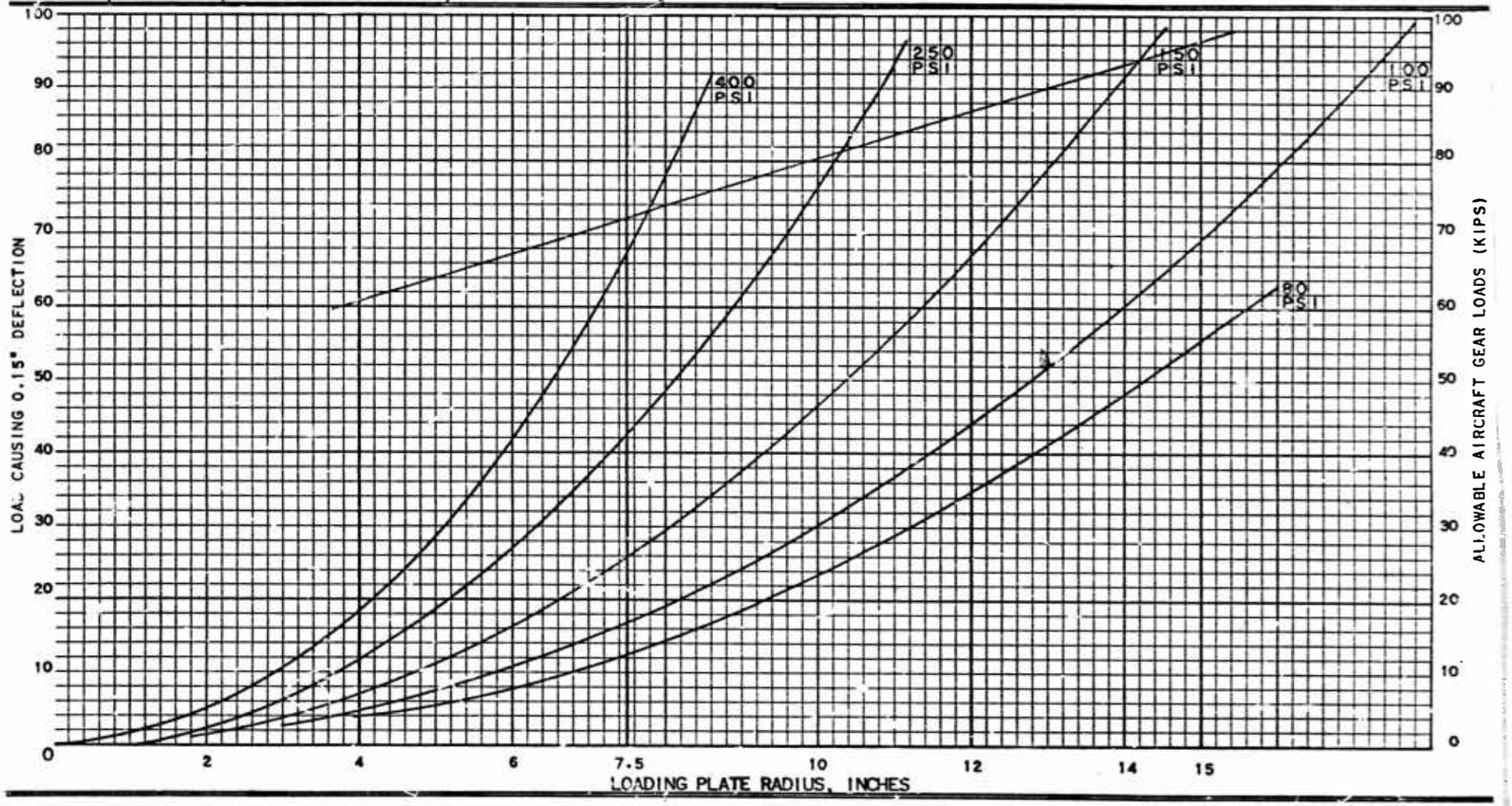
IIND-NCEL-3960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Intersecting Taxiway E, Soil Cement Base	June 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
94	72	122	183

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS



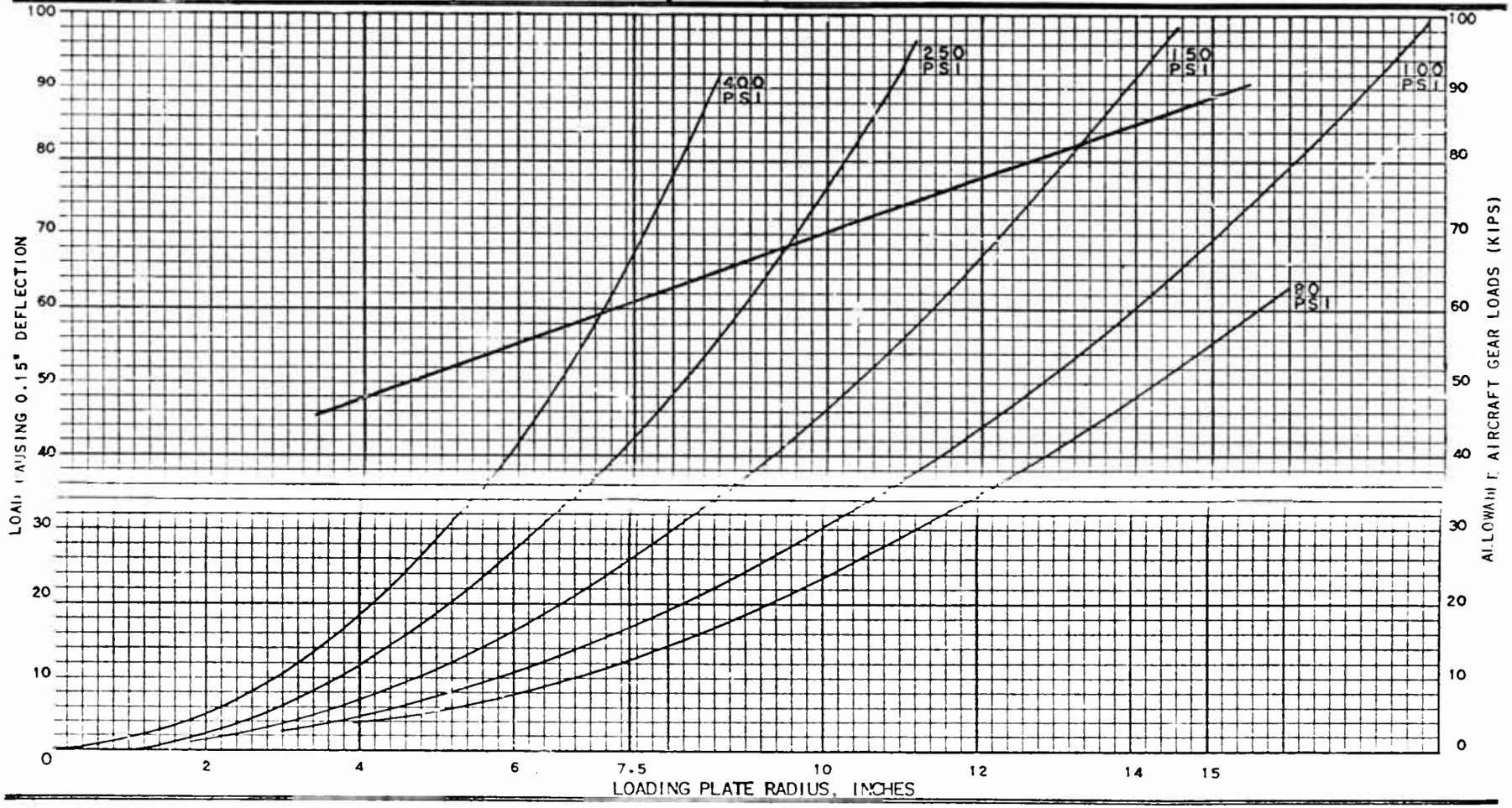
NAVFAC-NCEL-5960/21 (REV. 2-66)

FACILITY	LOCATION	DATE
USNAF China Lake, California	Connecting Taxiway C, Soil Cement Base	Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
82.0	59.0	106.6	160.0

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS

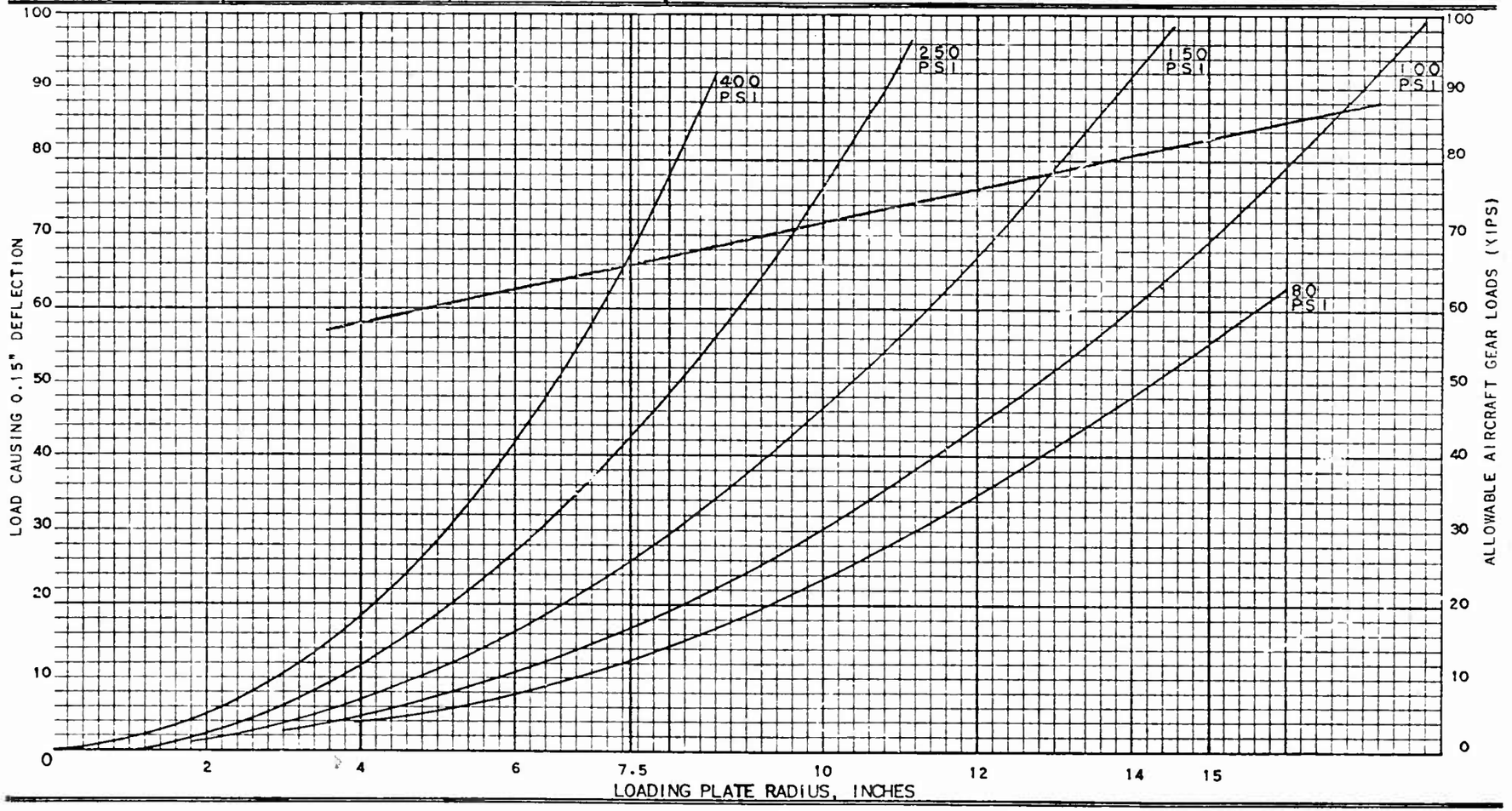


FACILITY	LOCATION	DATE
[illegible]	[illegible] Taxiway D, Soft Cement Pass	Jan 66

ALLOWABLE AIRCRAFT GEAR LOADS (KIPS)

SINGLE WHEEL GEAR		DUAL WHEEL GEAR SWG X 1.30 150 PSI	DUAL TANDEM GEAR SWG X 1.95 150 PSI
150 PSI TIRES	400 PSI TIRES		
[illegible]	[illegible]	[illegible]	[illegible]

GRAPHIC METHOD FOR DETERMINING ALLOWABLE SINGLE WHEEL LOADS

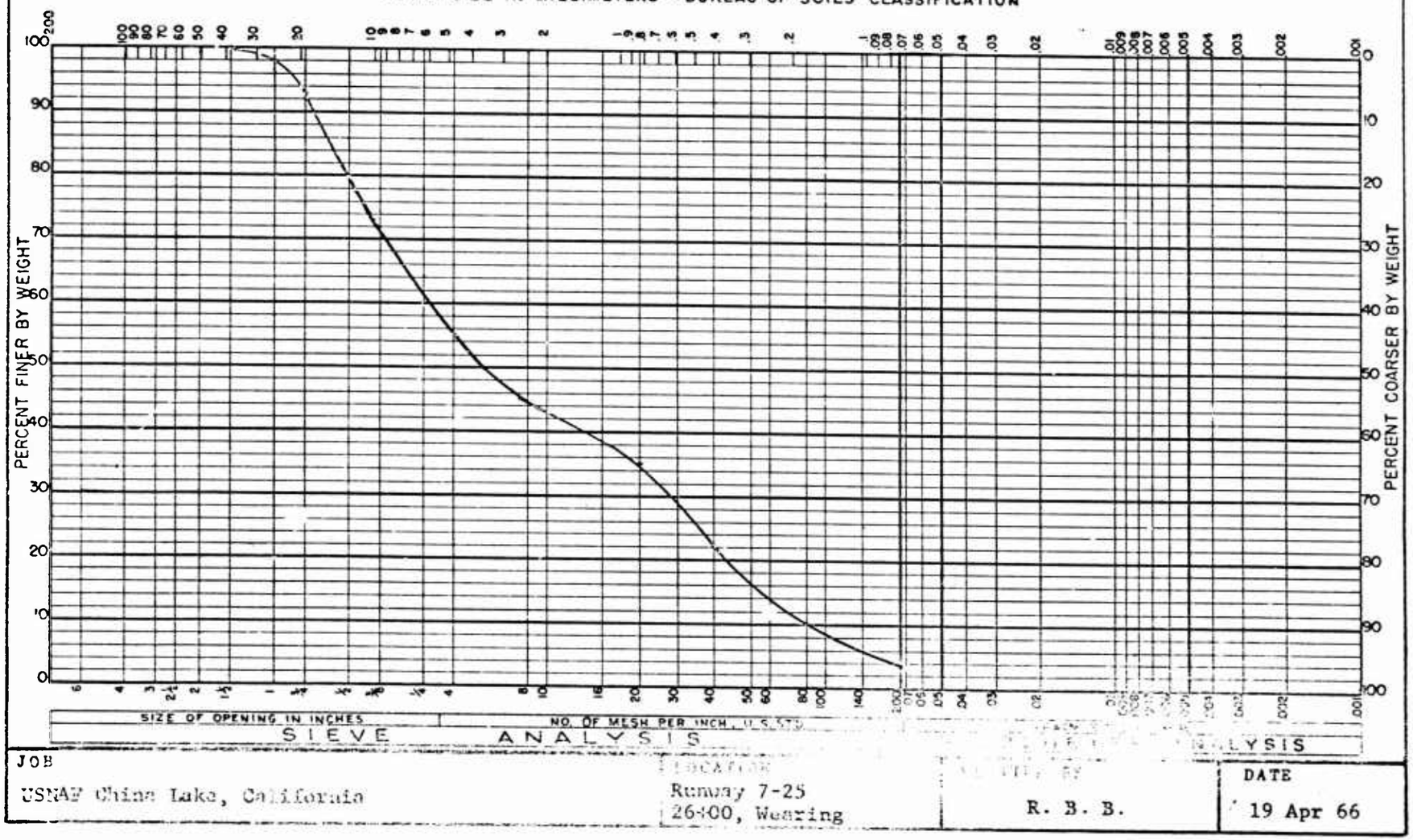


Appendix F

MECHANICAL ANALYSIS OF RECOVERED AND SUBSURFACE AGGREGATES

NAVFAC 5010/4 (REV. 7-63)

MECHANICAL ANALYSIS

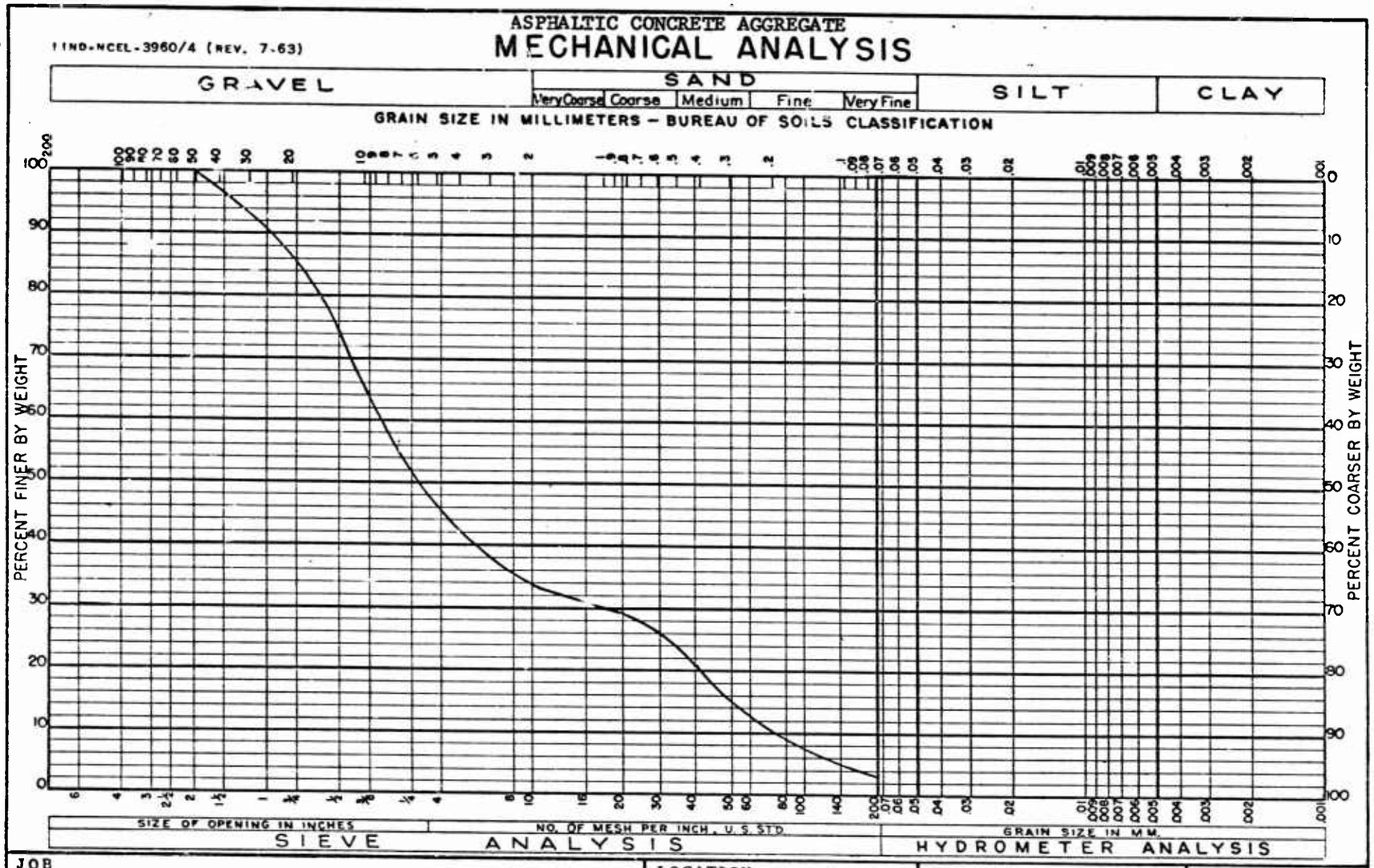


JOB	LOCATION	BORING NO.	DATE
USNAF China Lake, California	Runway 7-25 26+00, Westing	R. B. B.	19 Apr 66

FIND-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 7-25 46+00	R. B. B.	Apr 66

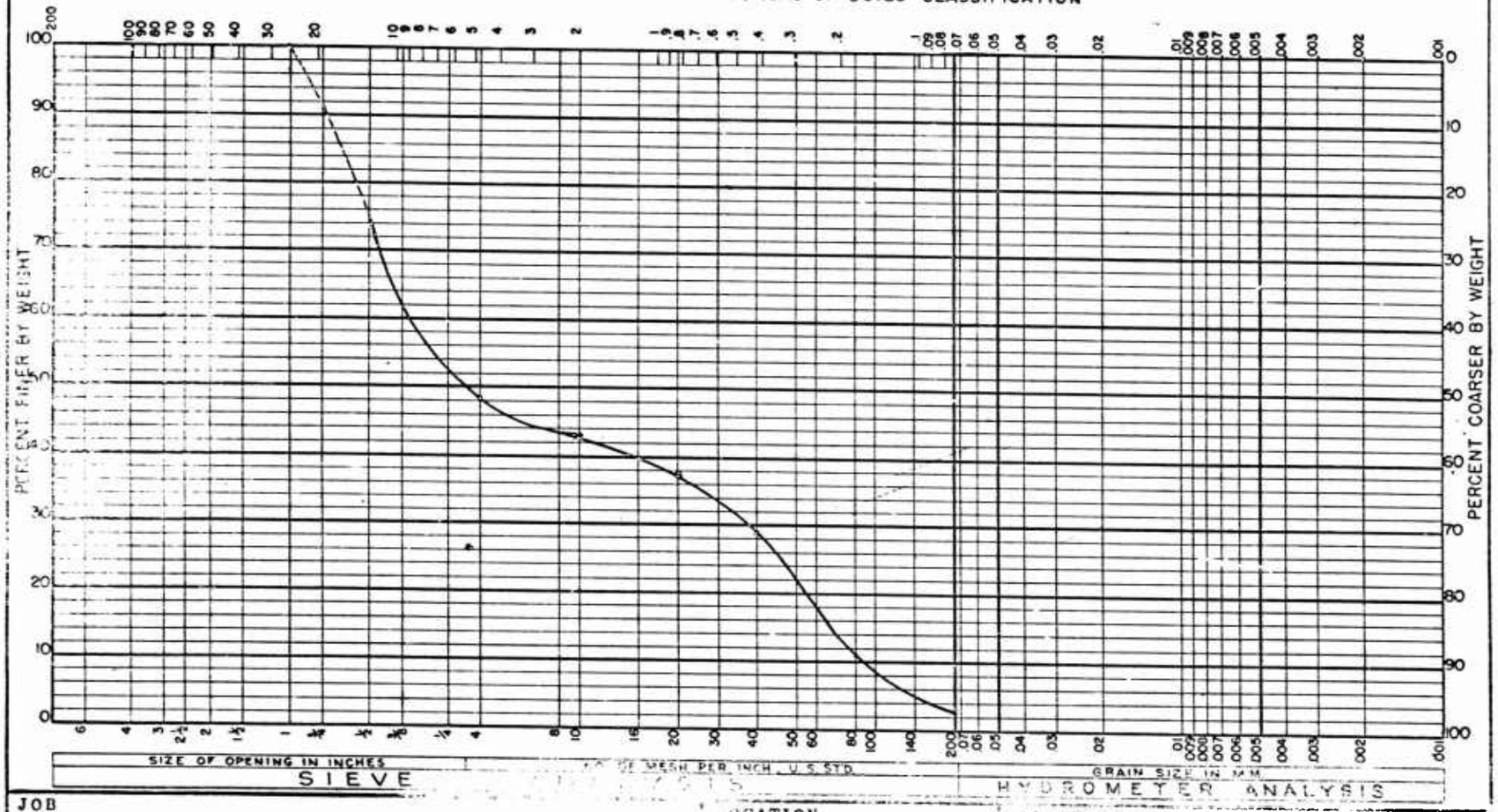
NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 7-25 66+00, Wearing	R. B. B.	Apr 66

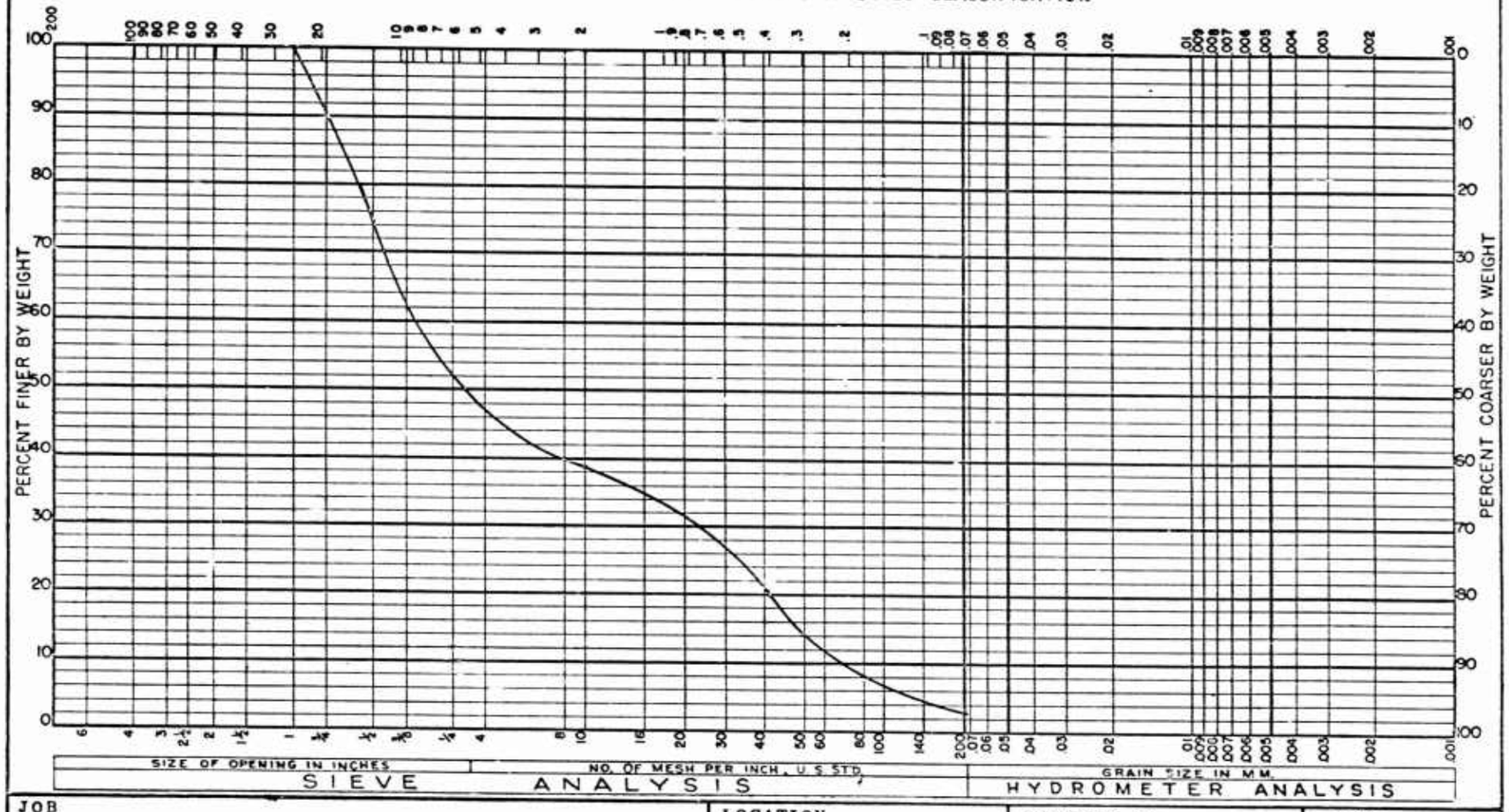
NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 14-32 24+00, Wearing	R. B. B.	Apr 66

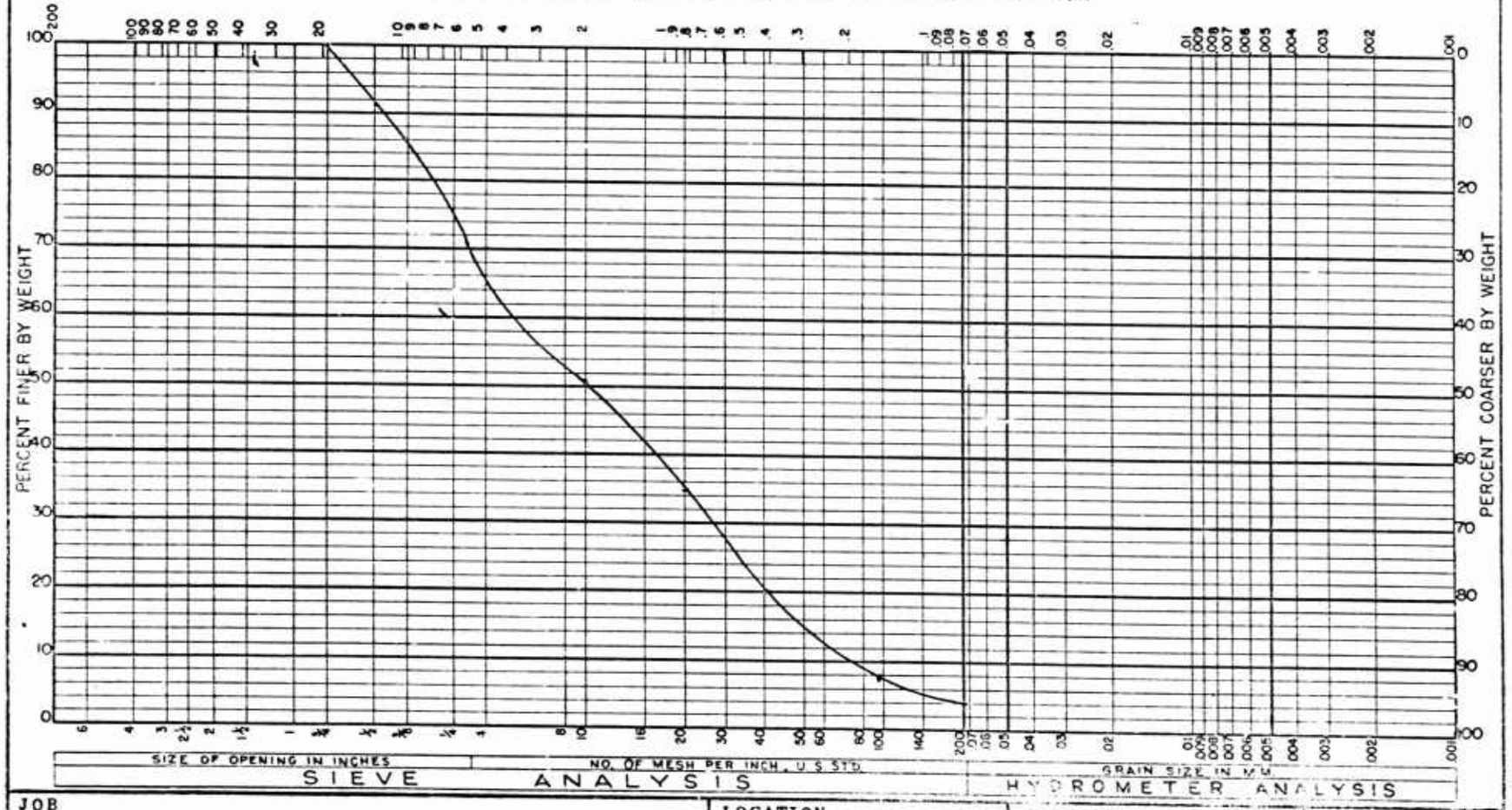
ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

NAVFAC-NCEL-3960/4 (REV. 7-63)

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION

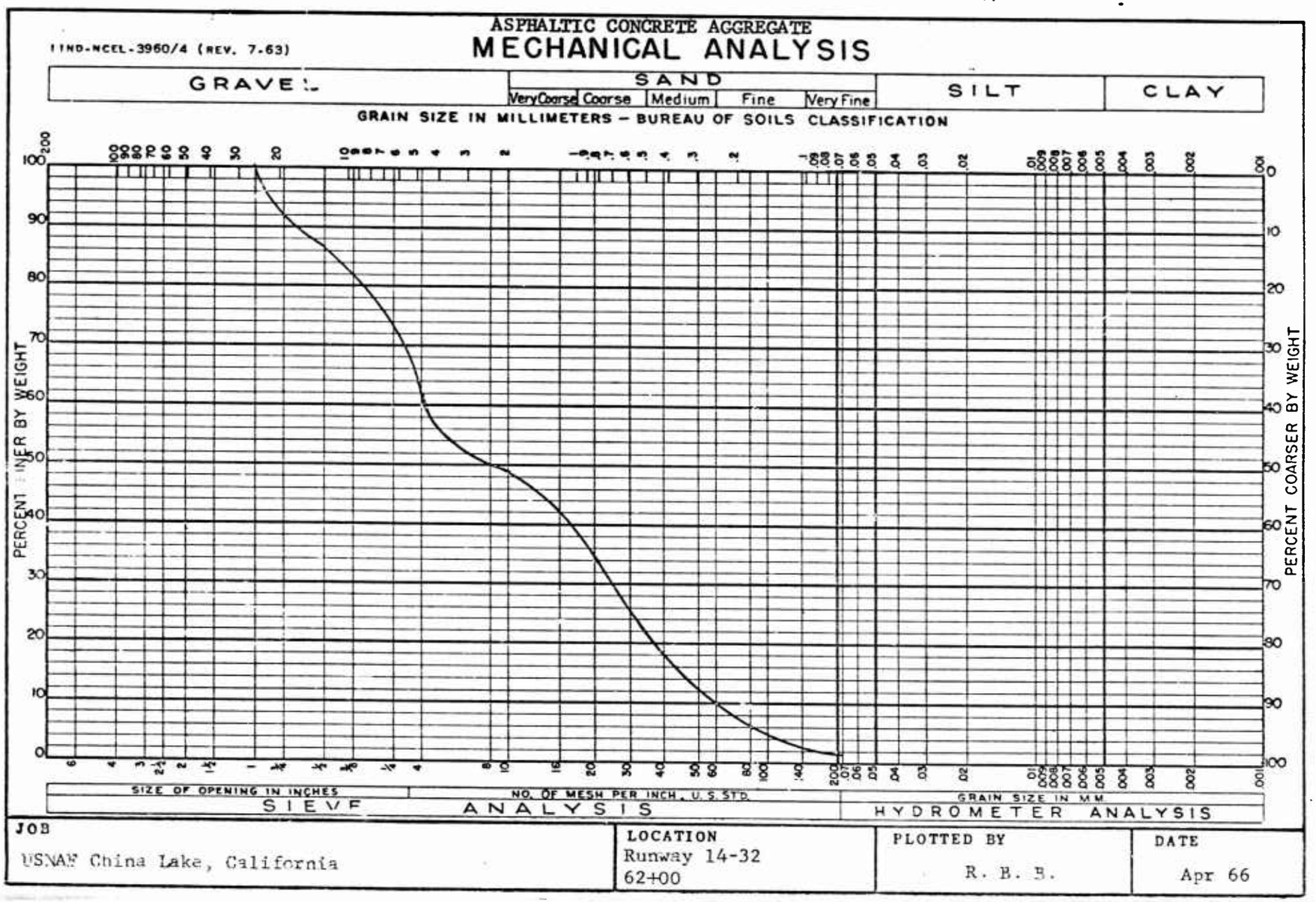


JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 14-32 44+00	R. B. B.	Apr 66

NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 14-32 62+00	R. B. B.	Apr 66

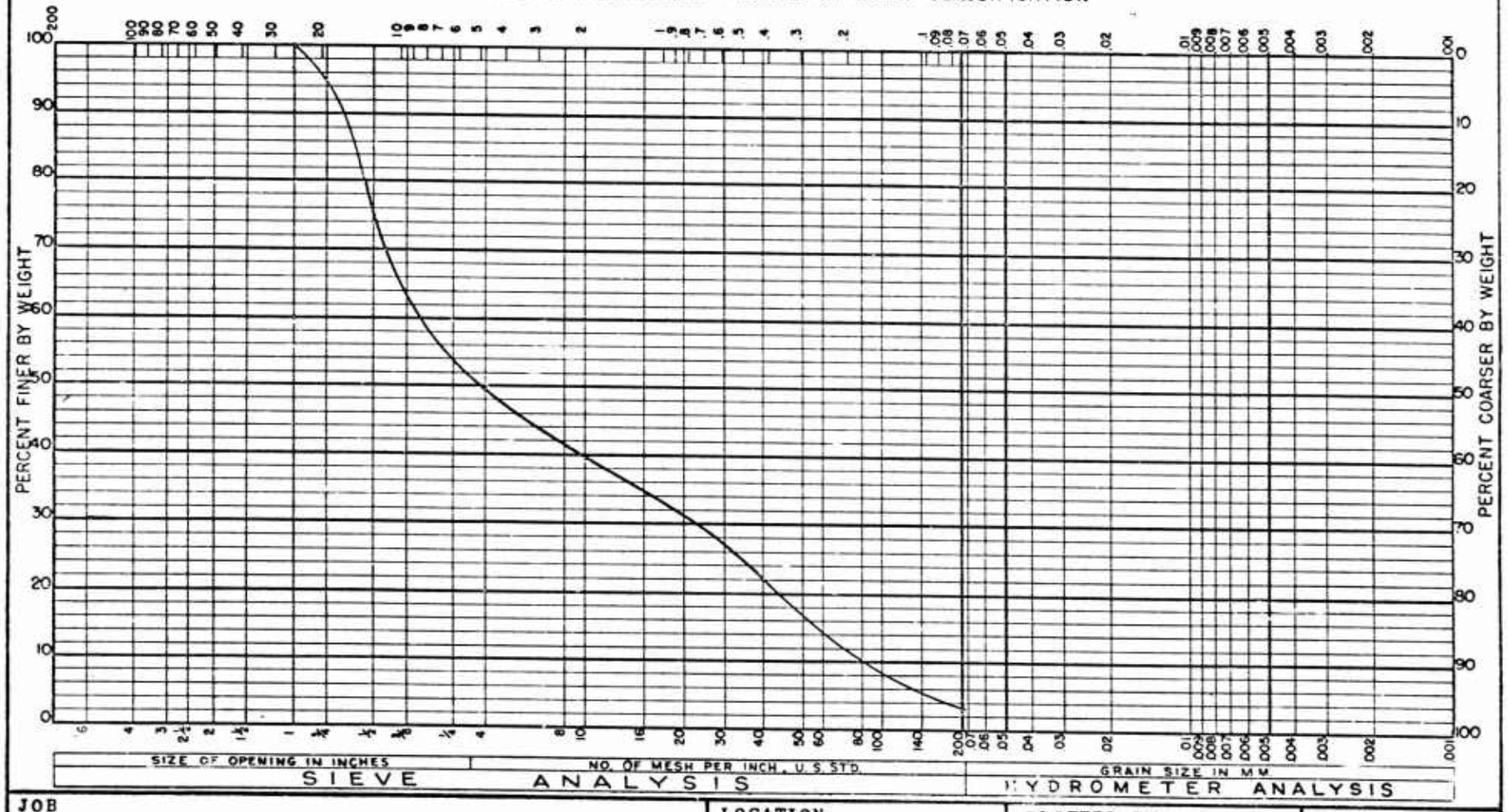
NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 10+00	R. L.	Apr 66

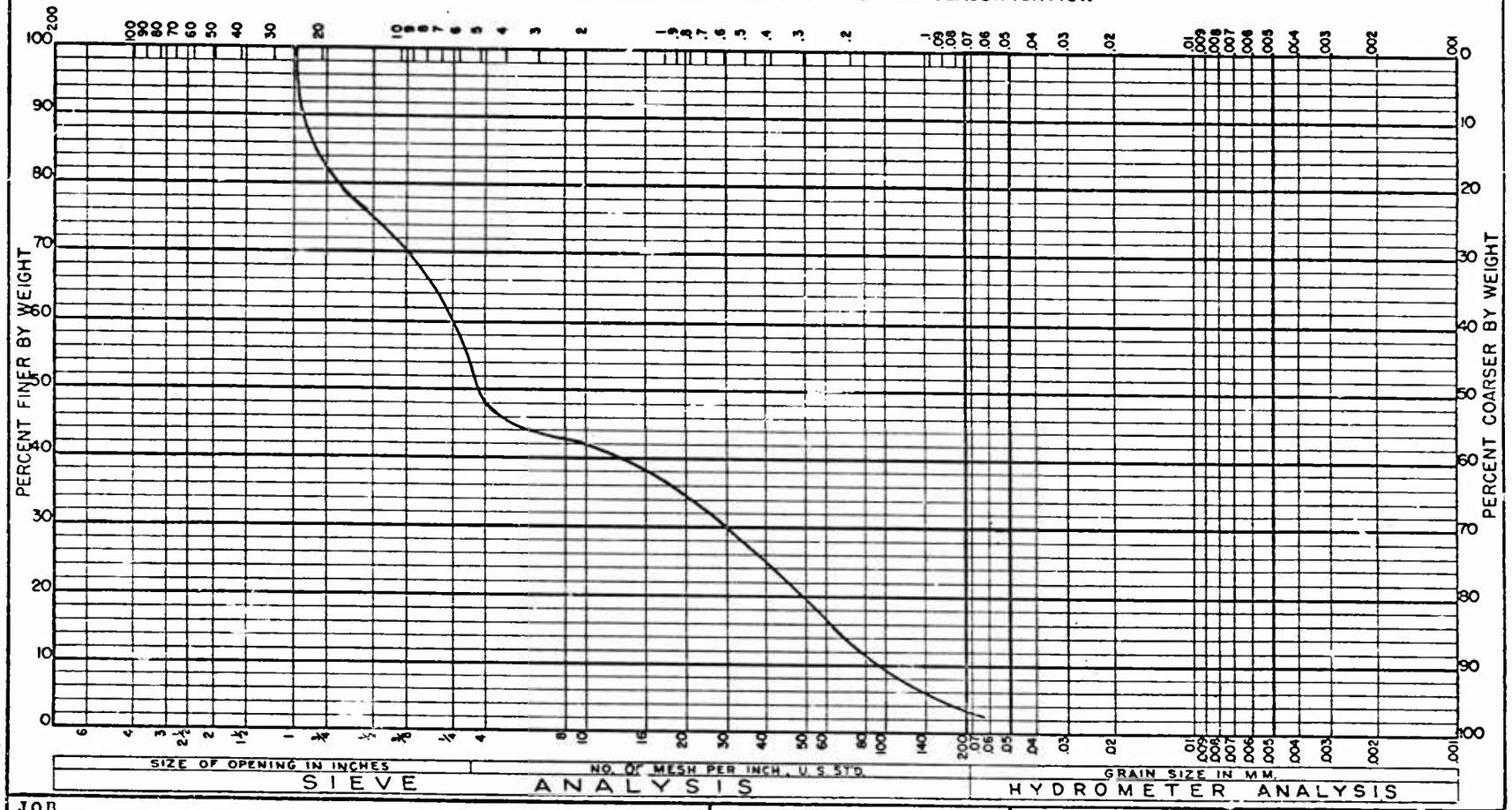
NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

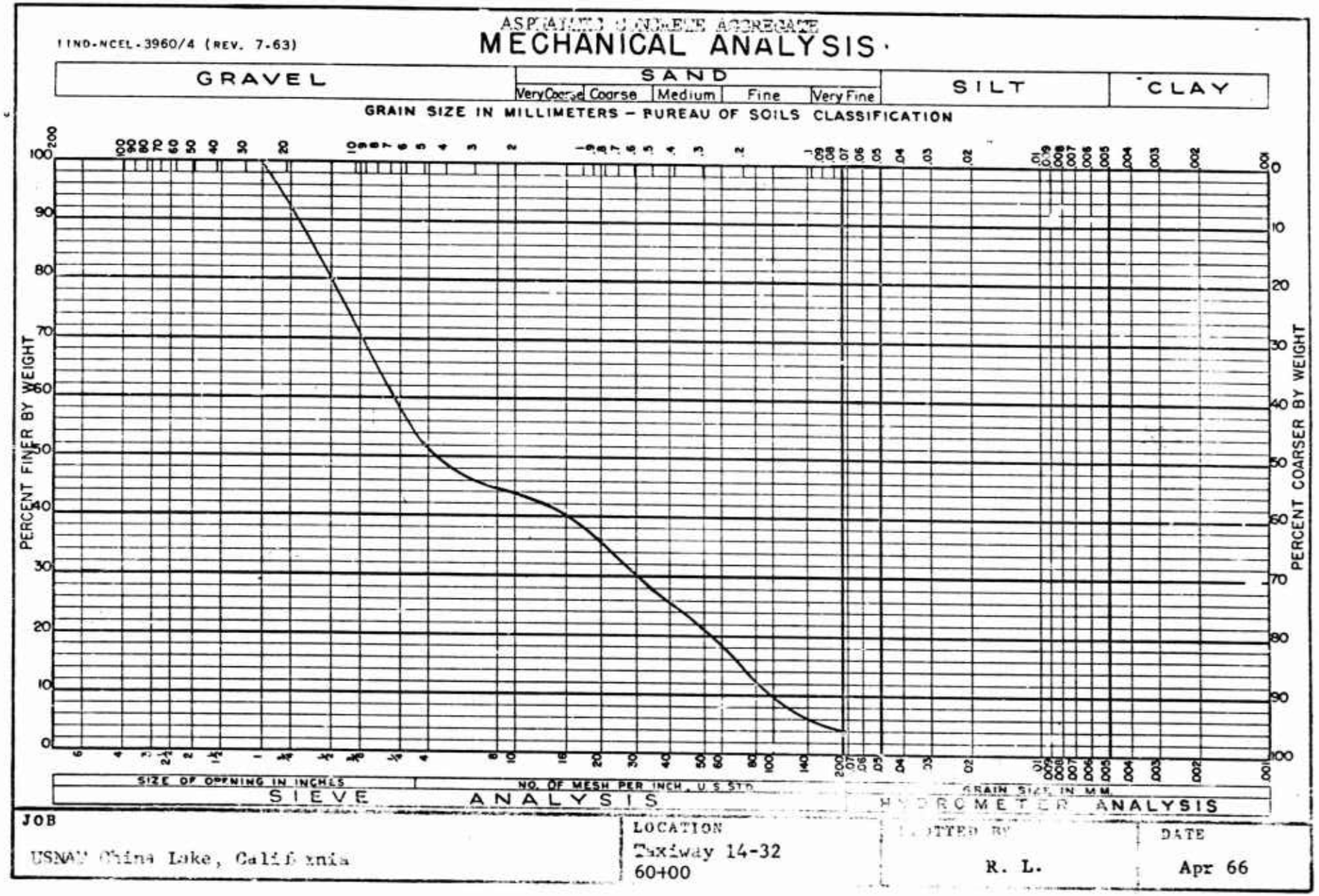
GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



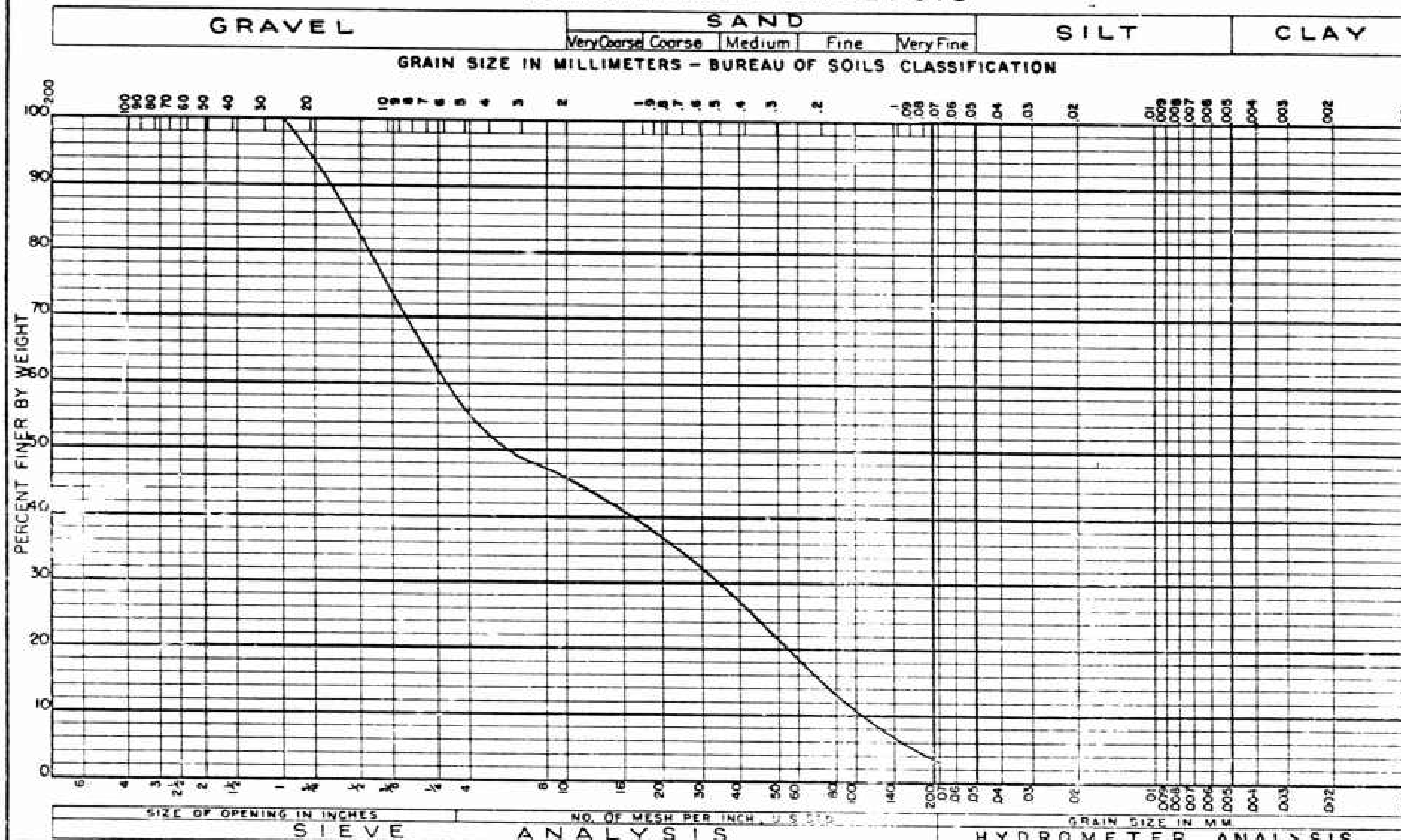
SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN M.M.
SIEVE	ANALYSIS	HYDROMETER ANALYSIS

JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 40+00	R. L.	Apr 66


IND-NCEL-3960/4 (REV. 7-63)
ASPHALTIC CONCRETE AGGREGATE
MECHANICAL ANALYSIS
GRAVEL
SAND
Very Coarse
Coarse
Medium
Fine
Very Fine
SILT
CLAY
GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION
PERCENT FINER BY WEIGHT
PERCENT COARSER BY WEIGHT
SIZE OF OPENING IN INCHES
NO. OF MESH PER INCH, U.S STD.
GRAIN SIZE IN M.M.
SIEVE ANALYSIS
HYDROMETER ANALYSIS
JOB
USNAF China Lake, California
LOCATION
Taxiway 14-32
60+00
PLOTTED BY
R. L.
DATE
Apr 66

FIND-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE
MECHANICAL ANALYSIS

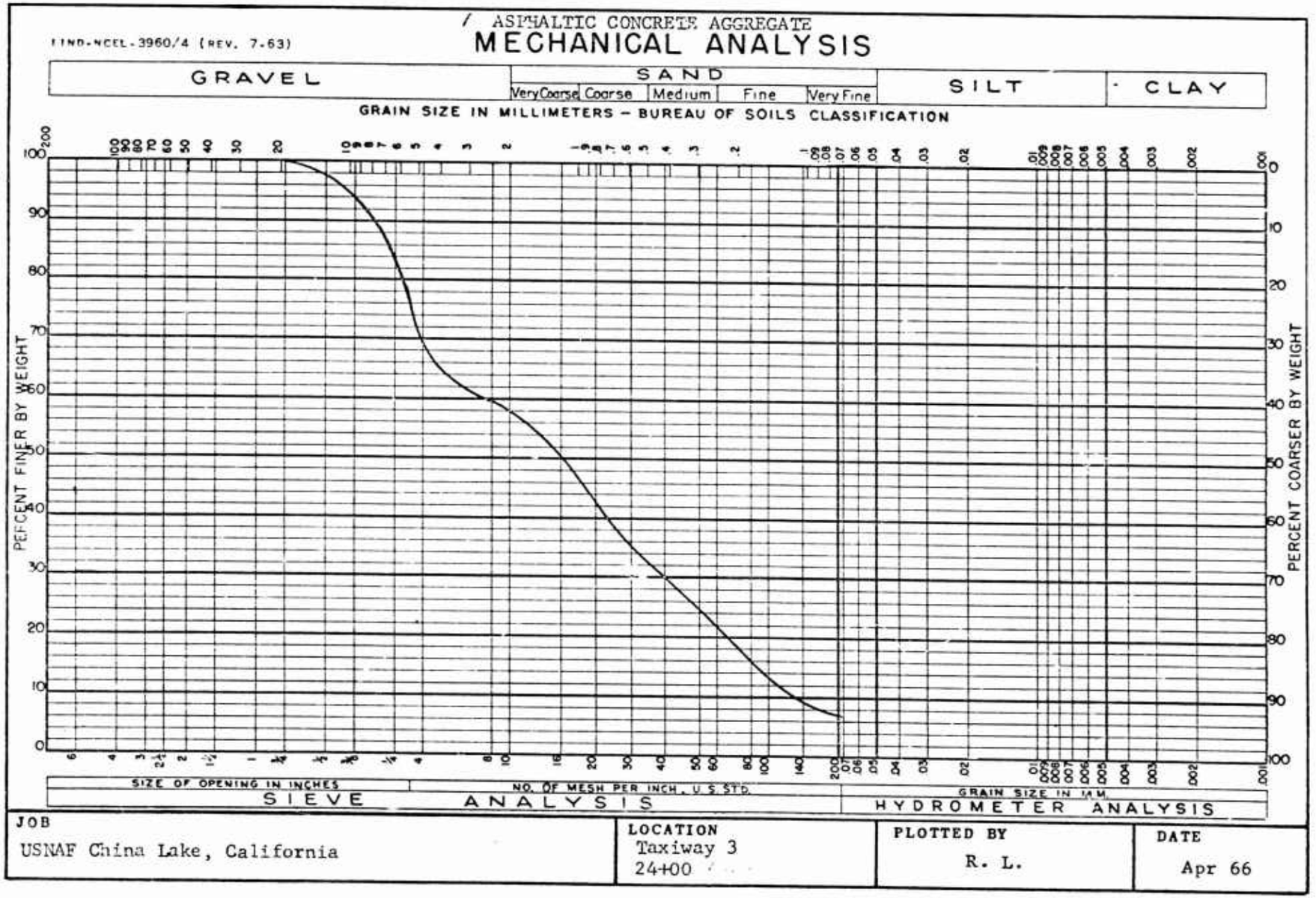


JOB	LOCATION	PLOTTED BY	DATE
[illegible]	Taxiway 14-32 86+00	E. L.	Apr 66

NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 3 24+00	R. L.	Apr 66

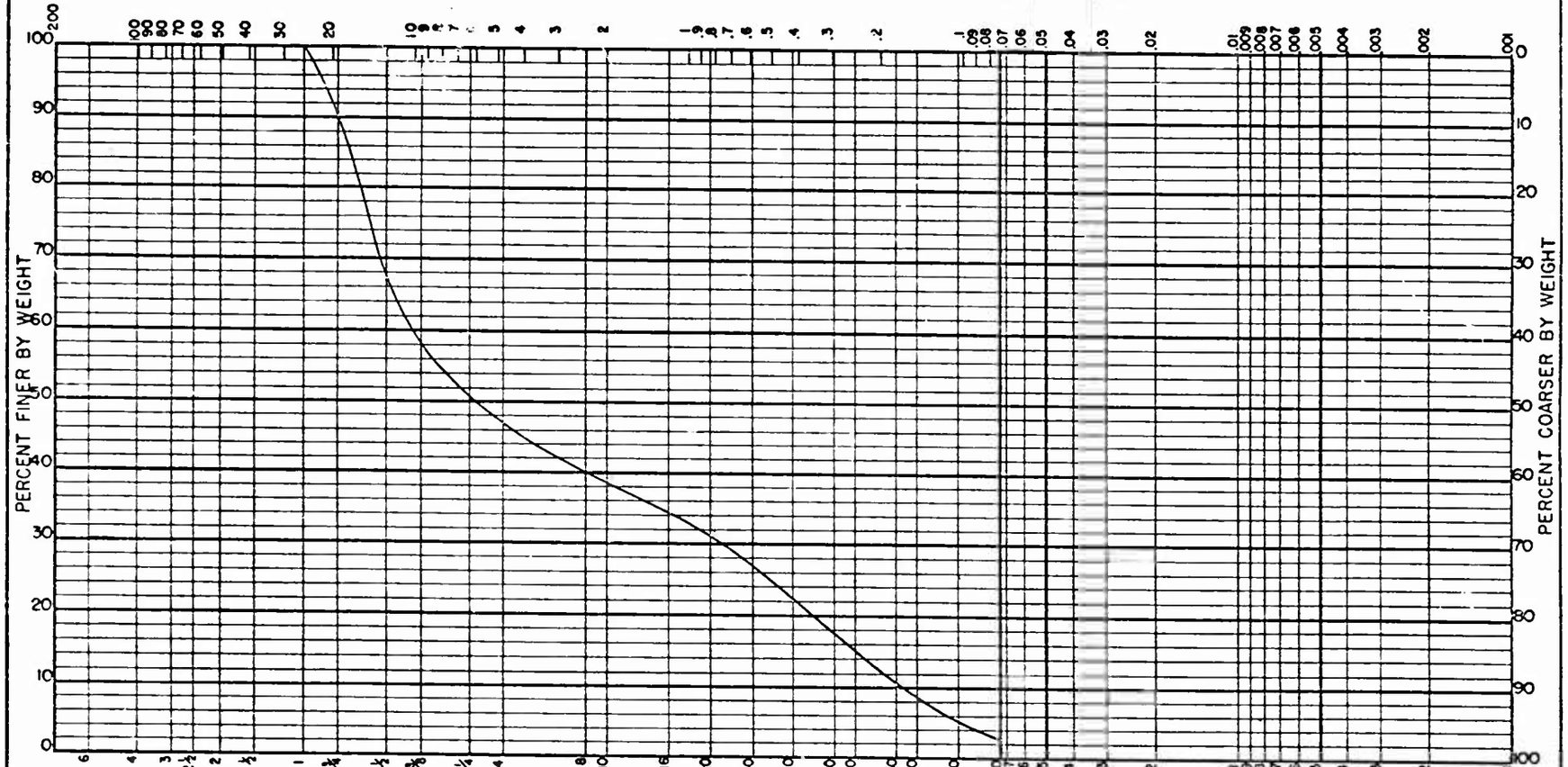
NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION

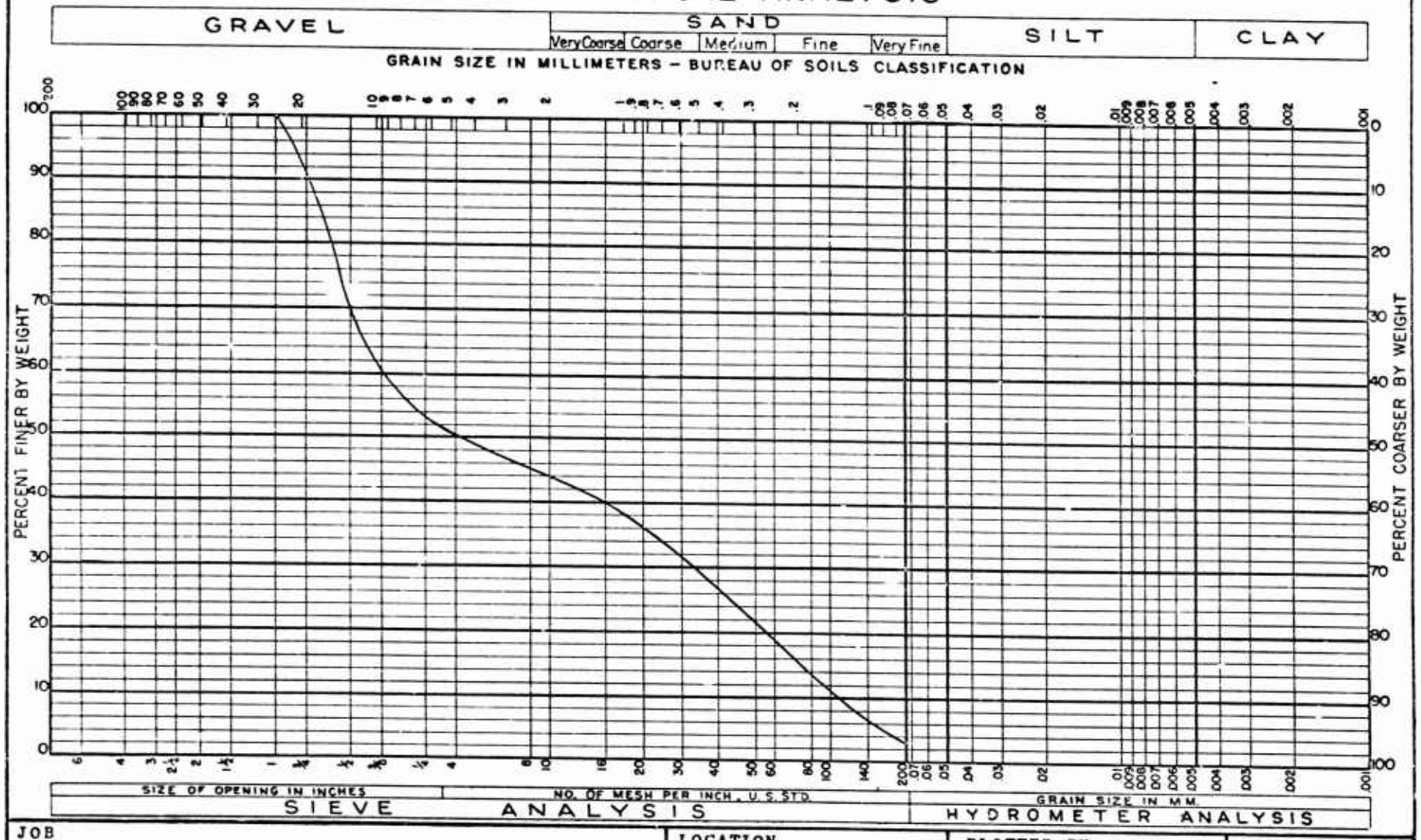


JOB	LOCATION	PLOTTED BY	DATE
[illegible]	Parkway 7 10+00	R. L.	Apr 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 21 7+00	R. L.	Apr 66

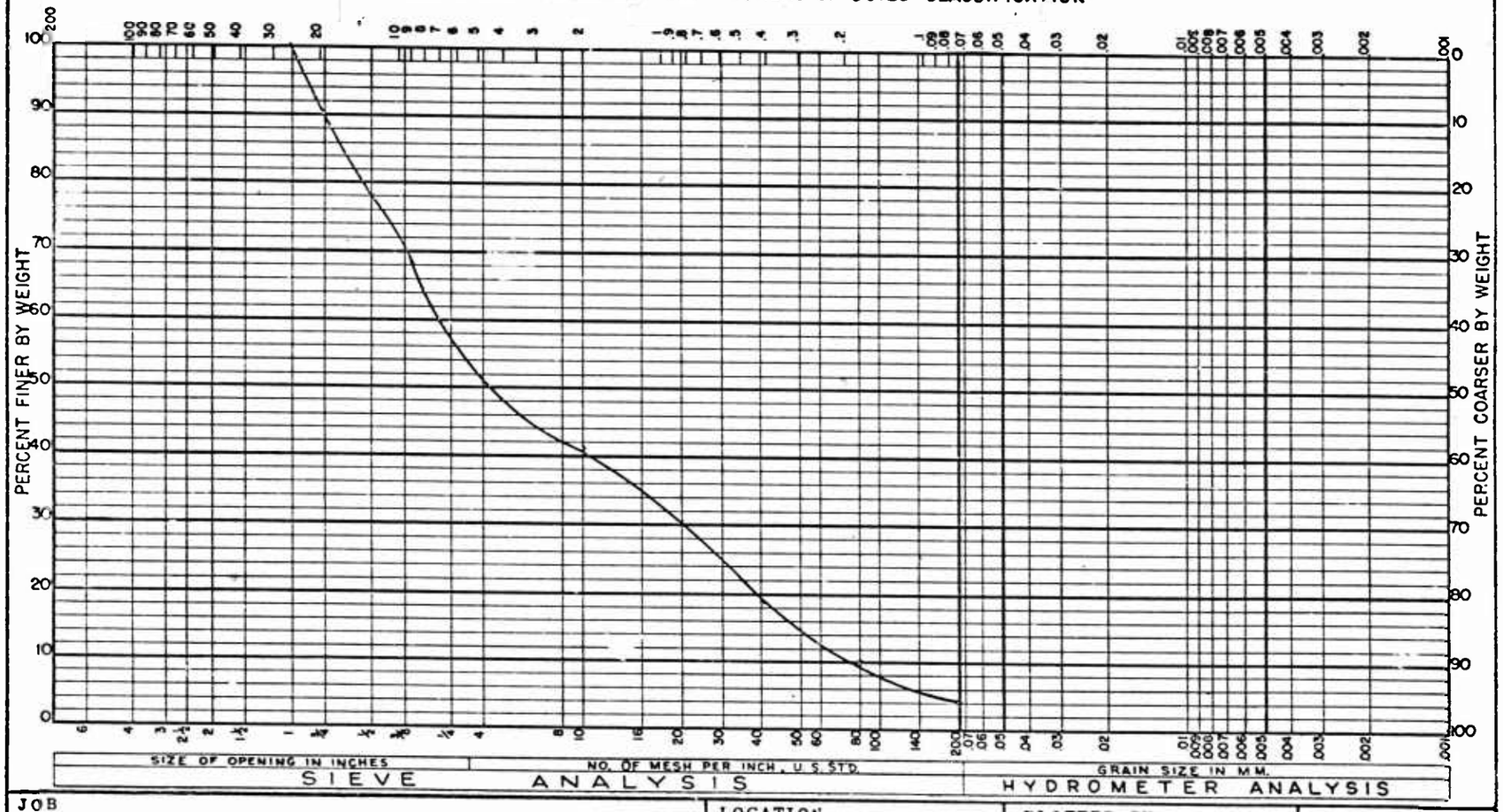
ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

IIND-NCEL-3960/4 (REV. 7-63)

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
[illegible]	Taxiway 21 18+00	R. B. E.	Apr 66

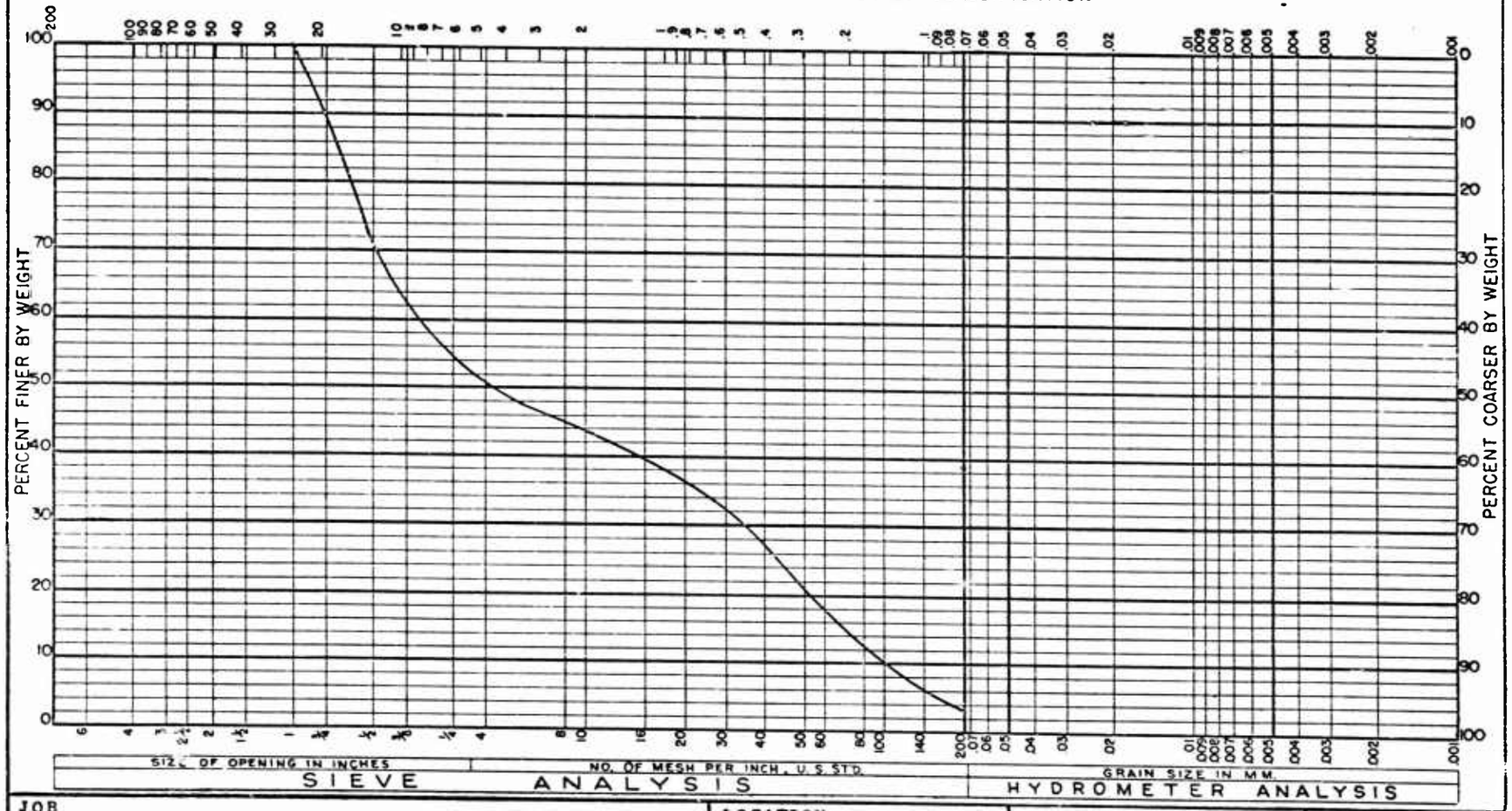
FIND-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 25 10+00	R. B. B.	Apr 66

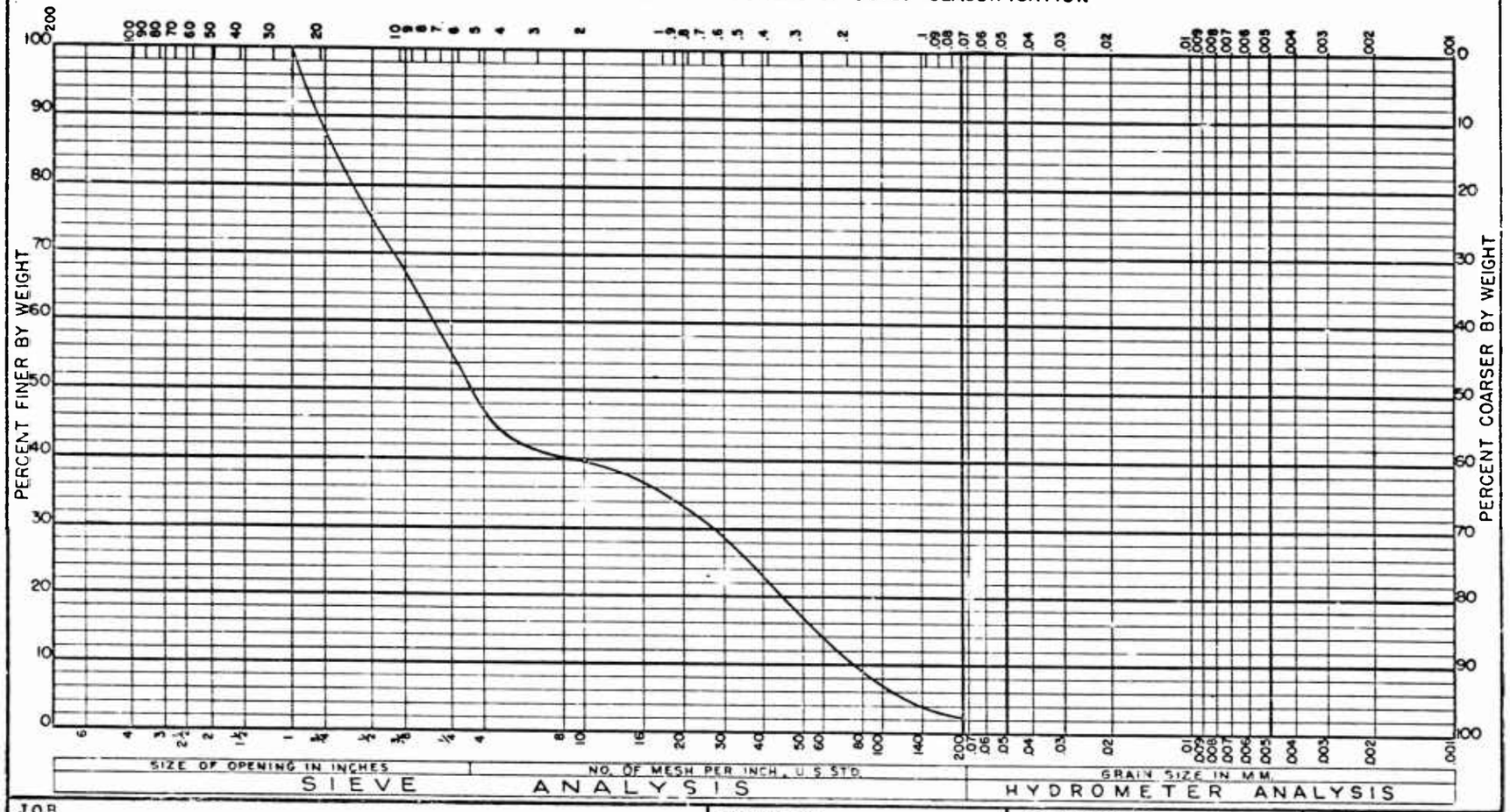
NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE-AGGREGATE

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
[illegible]	[illegible] Taxiway A 2+00	N. I.	Apr 66

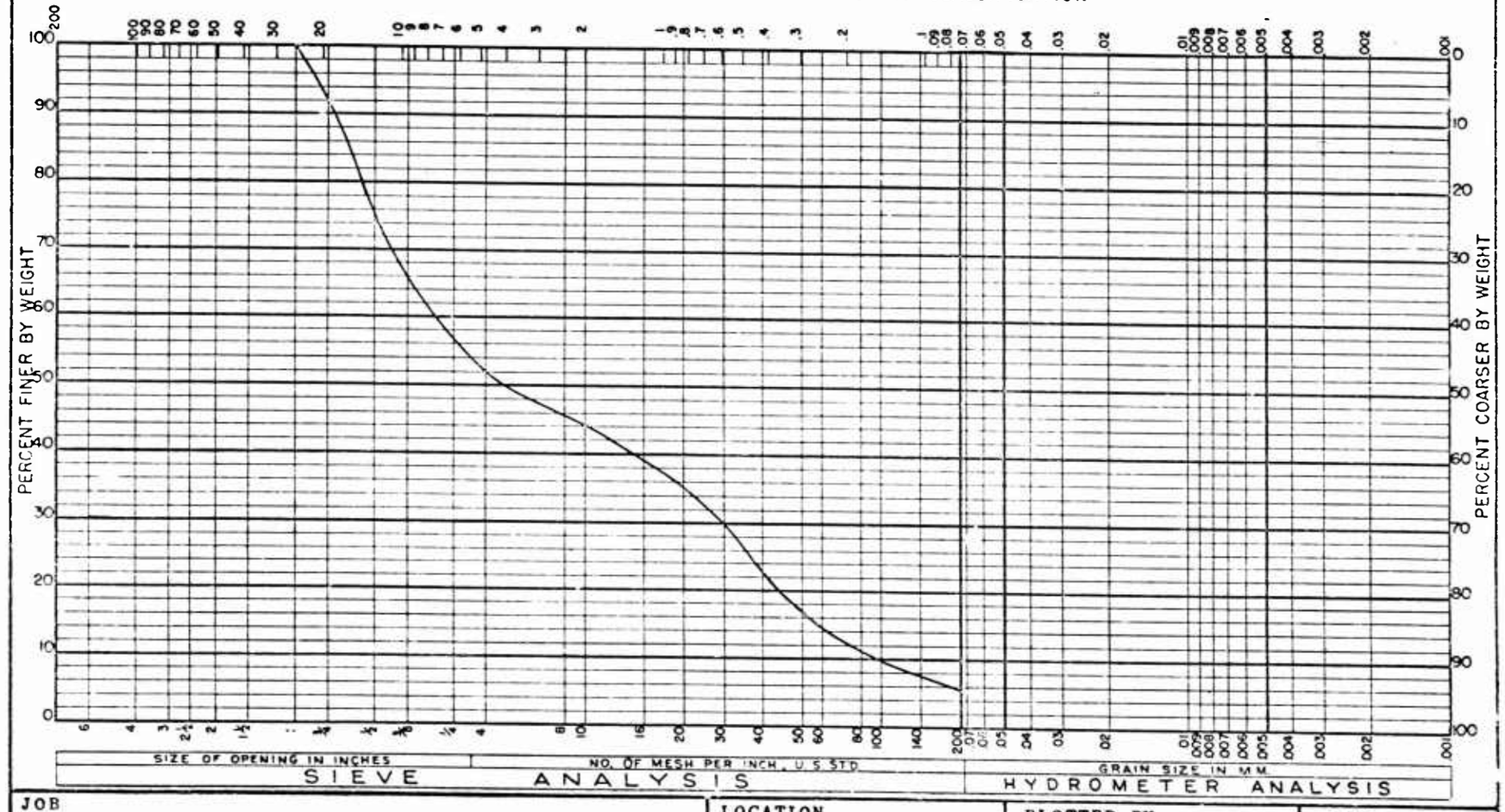
ASPHALTIC CONCRETE AGGREGATE

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Connecting Taxiway B 2+00	R. L.	Apr 66

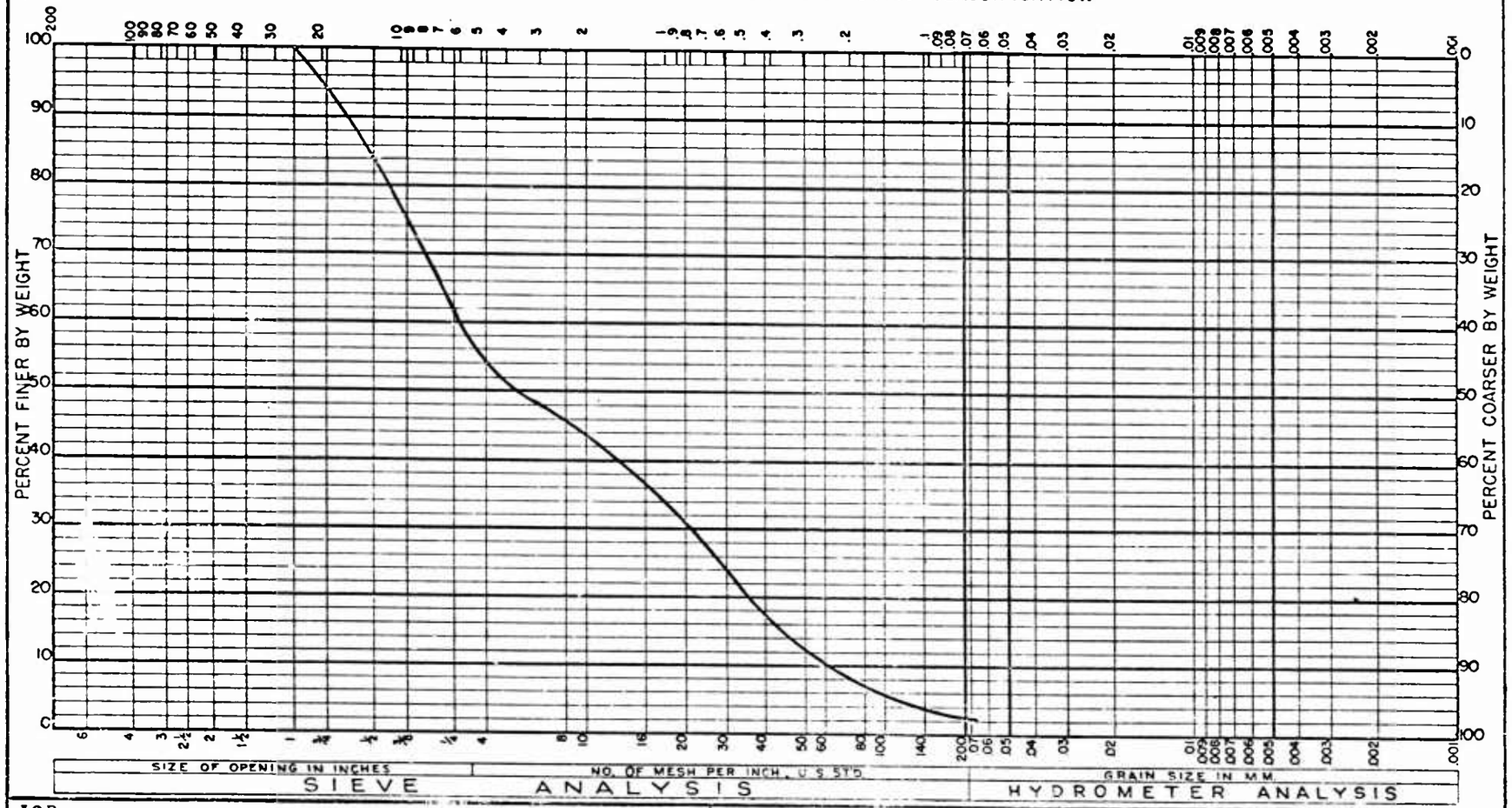
IND-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION

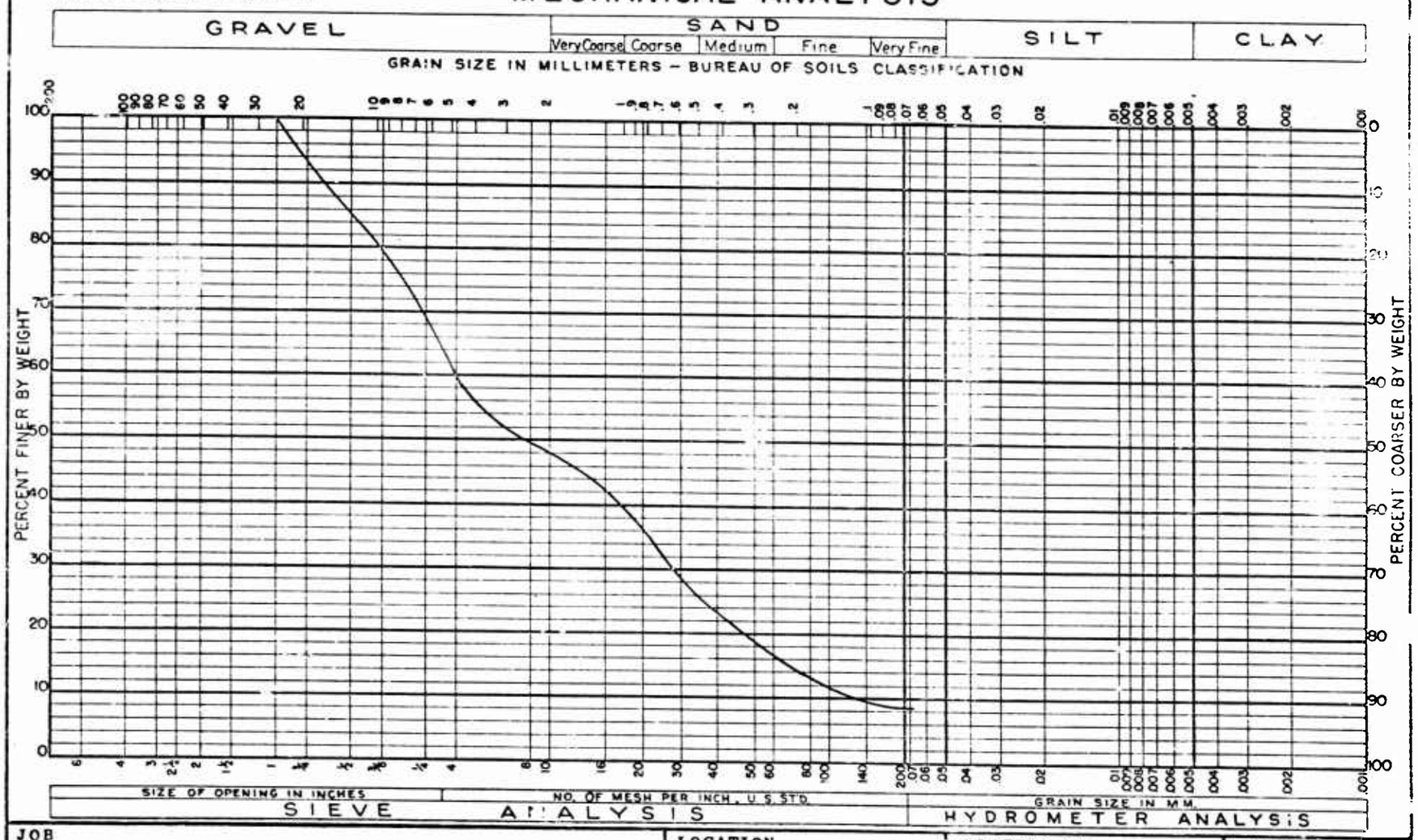


JOB	LOCATION	PLOTTED BY	DATE
[illegible]	[illegible] Connecting Taxiway B 2+00	W. L.	Apr 69

NAVFAC-NCEL-3960/4 (REV. 7-63)

ASPHALTIC CONCRETE AGGREGATE

MECHANICAL ANALYSIS



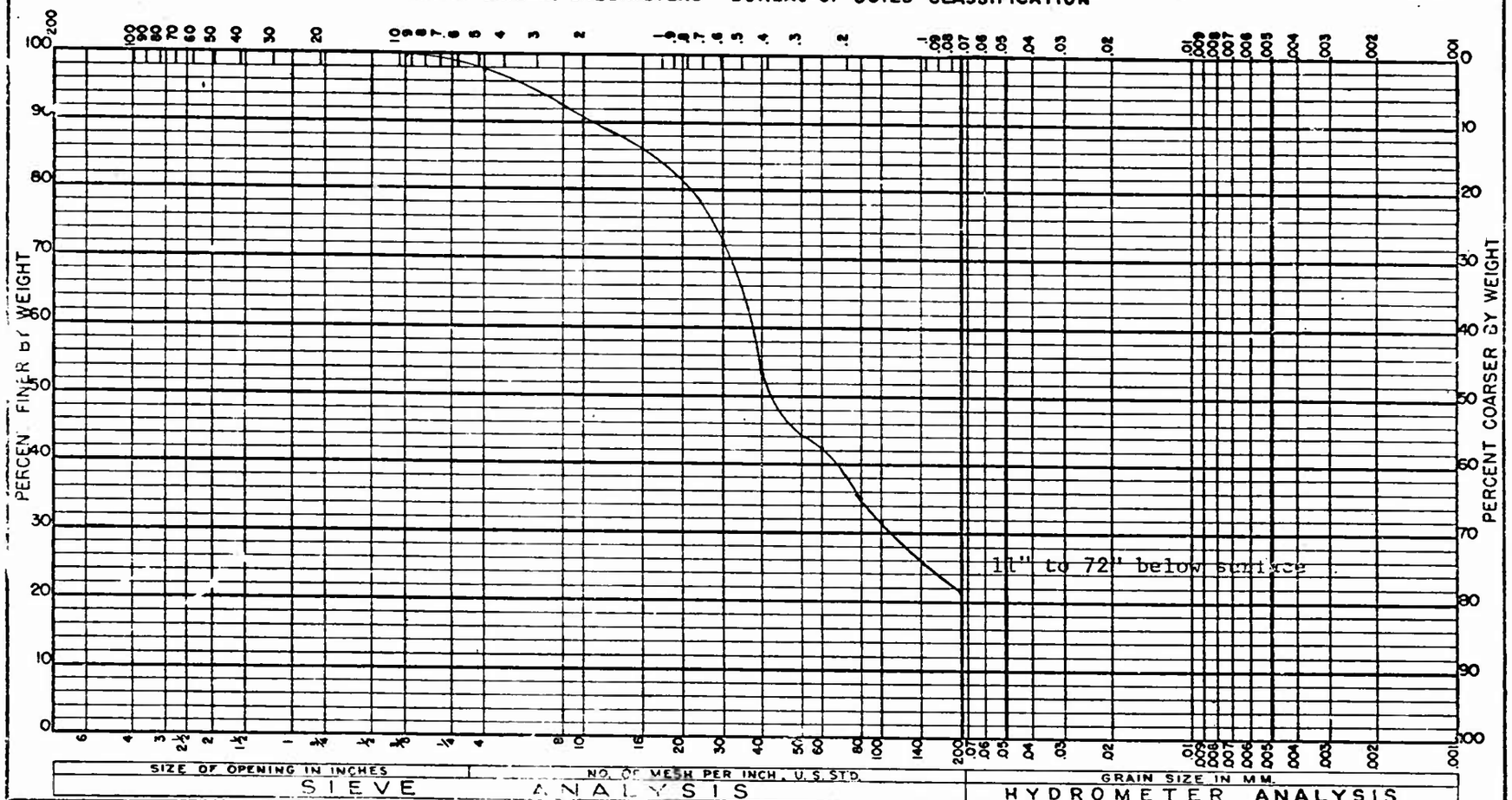
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Connecting Taxiway D 4400	R. L.	Apr 66

FIND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



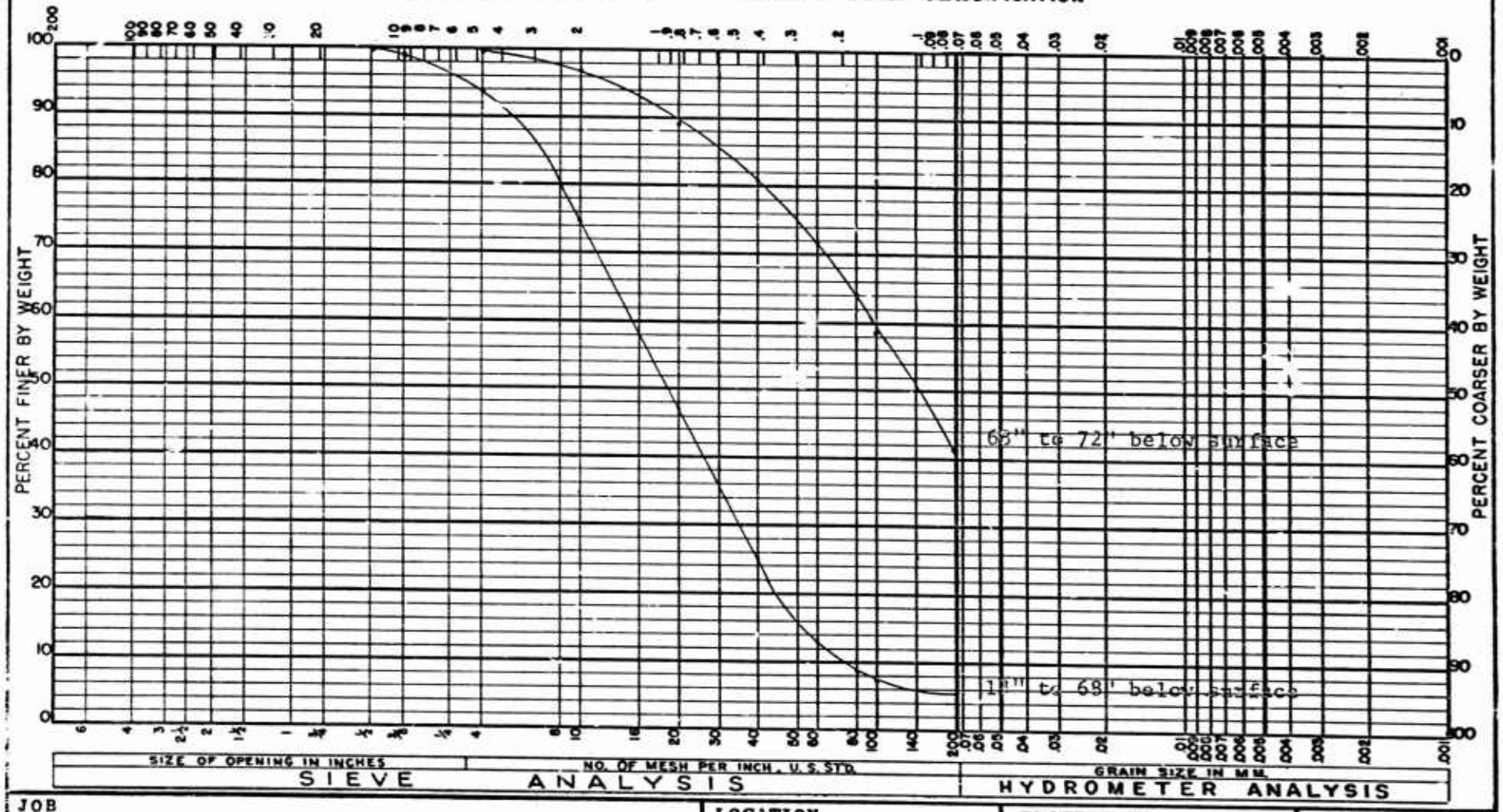
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 7-25 6+00	L. J. W.	17 Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



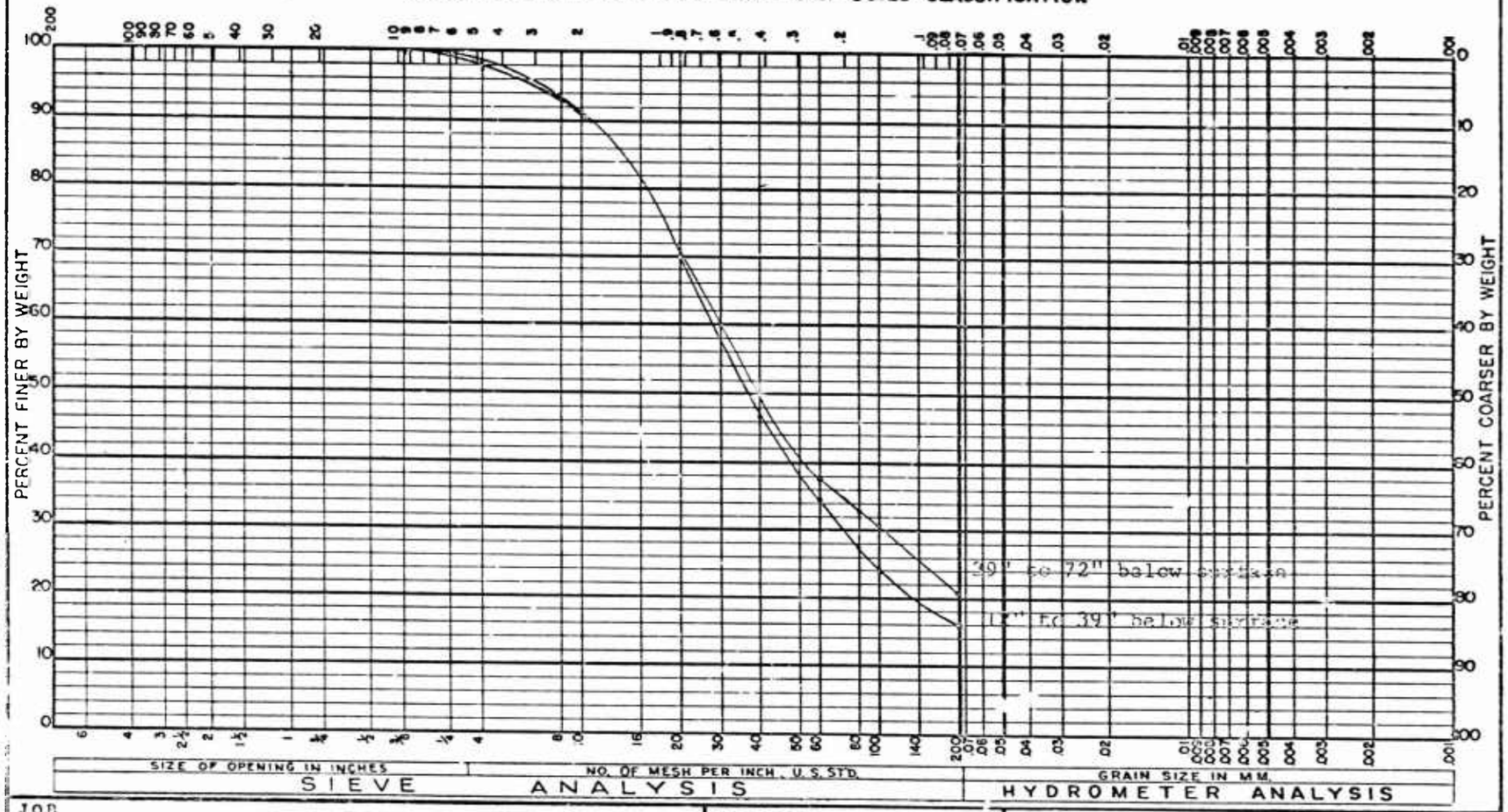
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 7-25 16+00	L. J. W.	17 Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



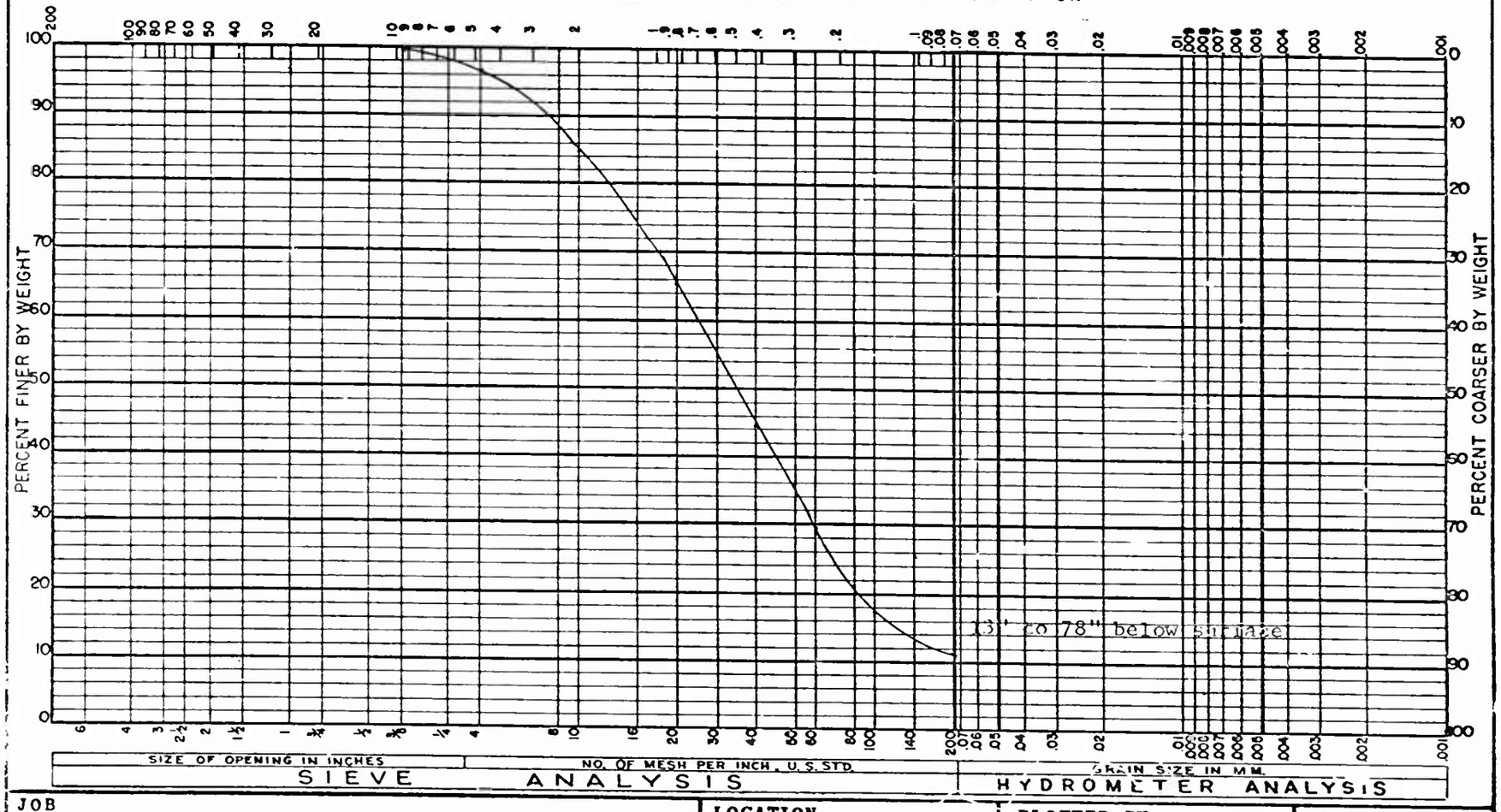
JOB	LOCATION	PLOTTED BY	DATE
[illegible] Lake, California	Runway 7-25 26+00	L. J. W.	17 Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



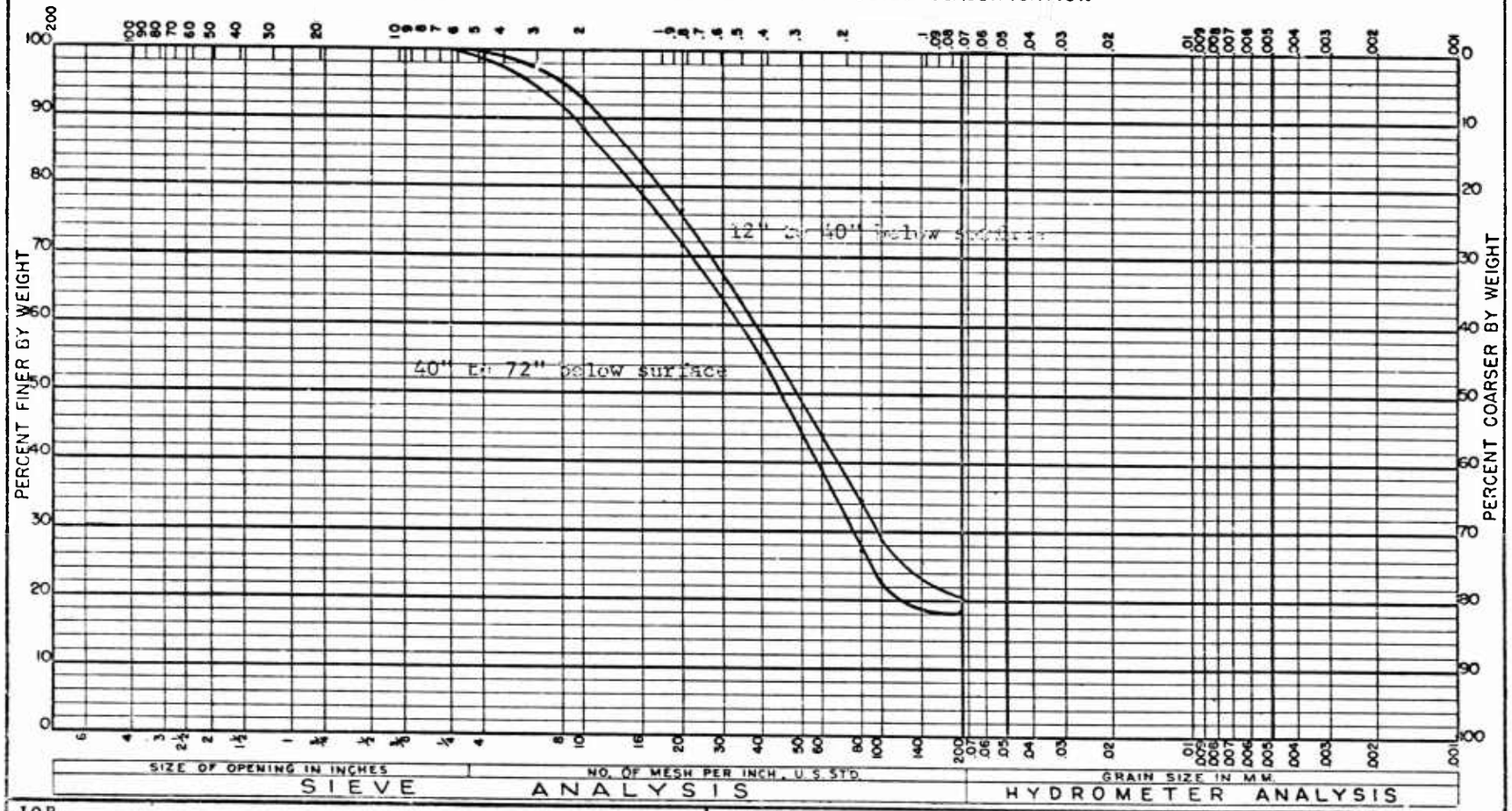
JOB	LOCATION	PLOTTED BY	DATE
USNAS China Lake, California	Runway 7-25 36+00	L. J. W.	2 Dec 65

FIND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



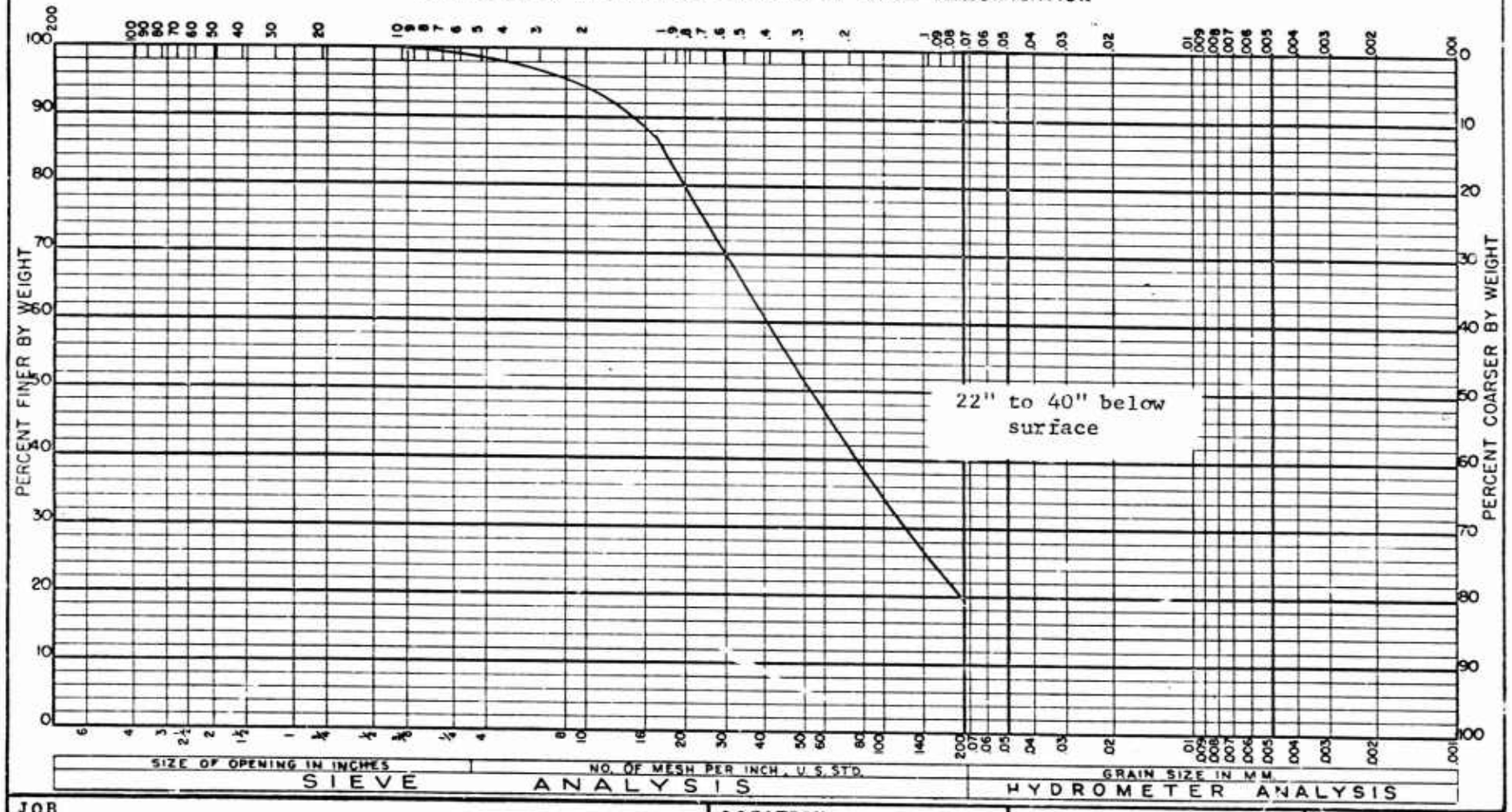
JOB	LOCATION	PLOTTED BY	DATE
USNAS Salton Lake, California	Runway 7-25 75+00	R. E. T.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



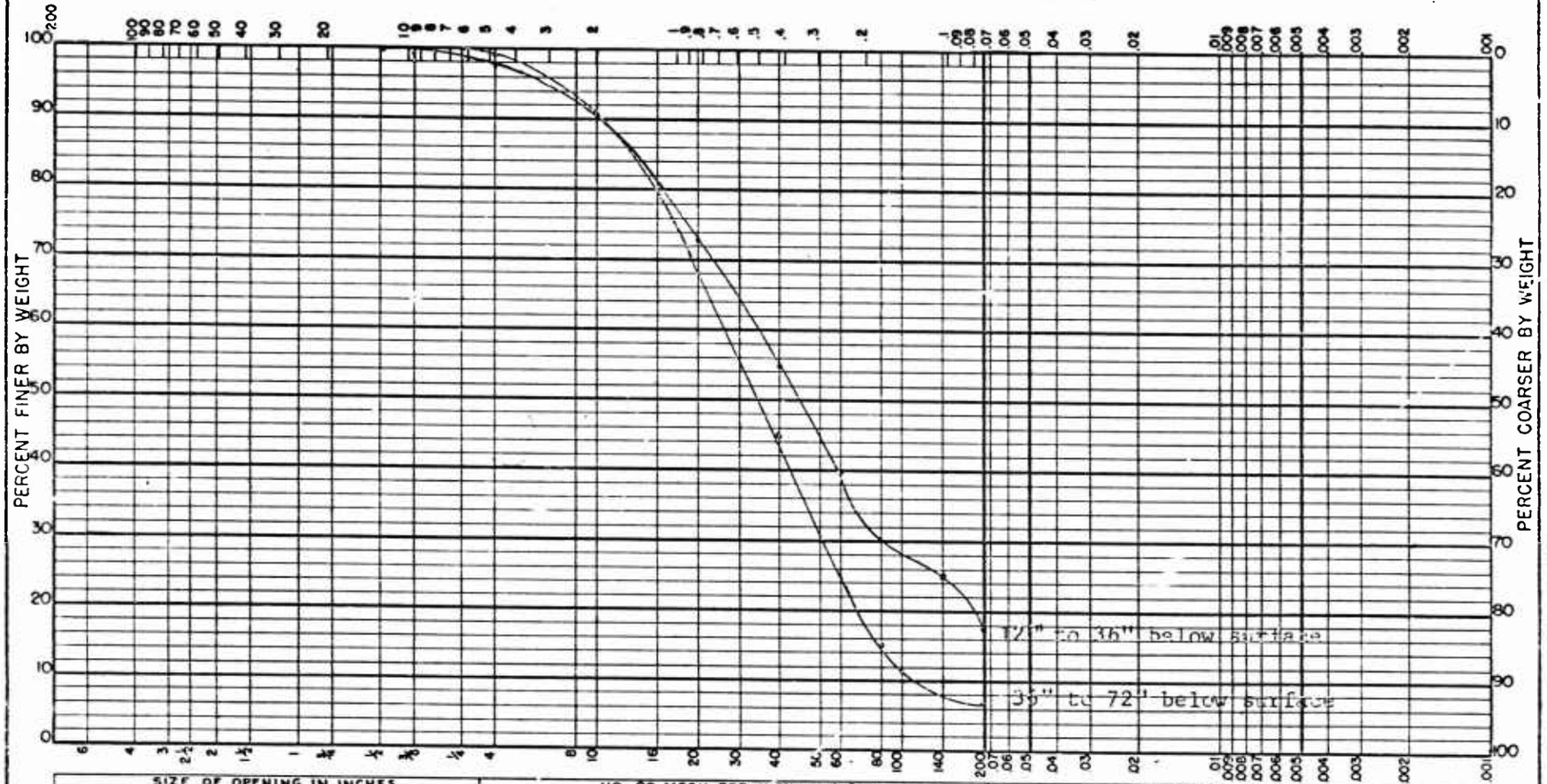
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 7-25 46+00	R. B. B.	Feb 66

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



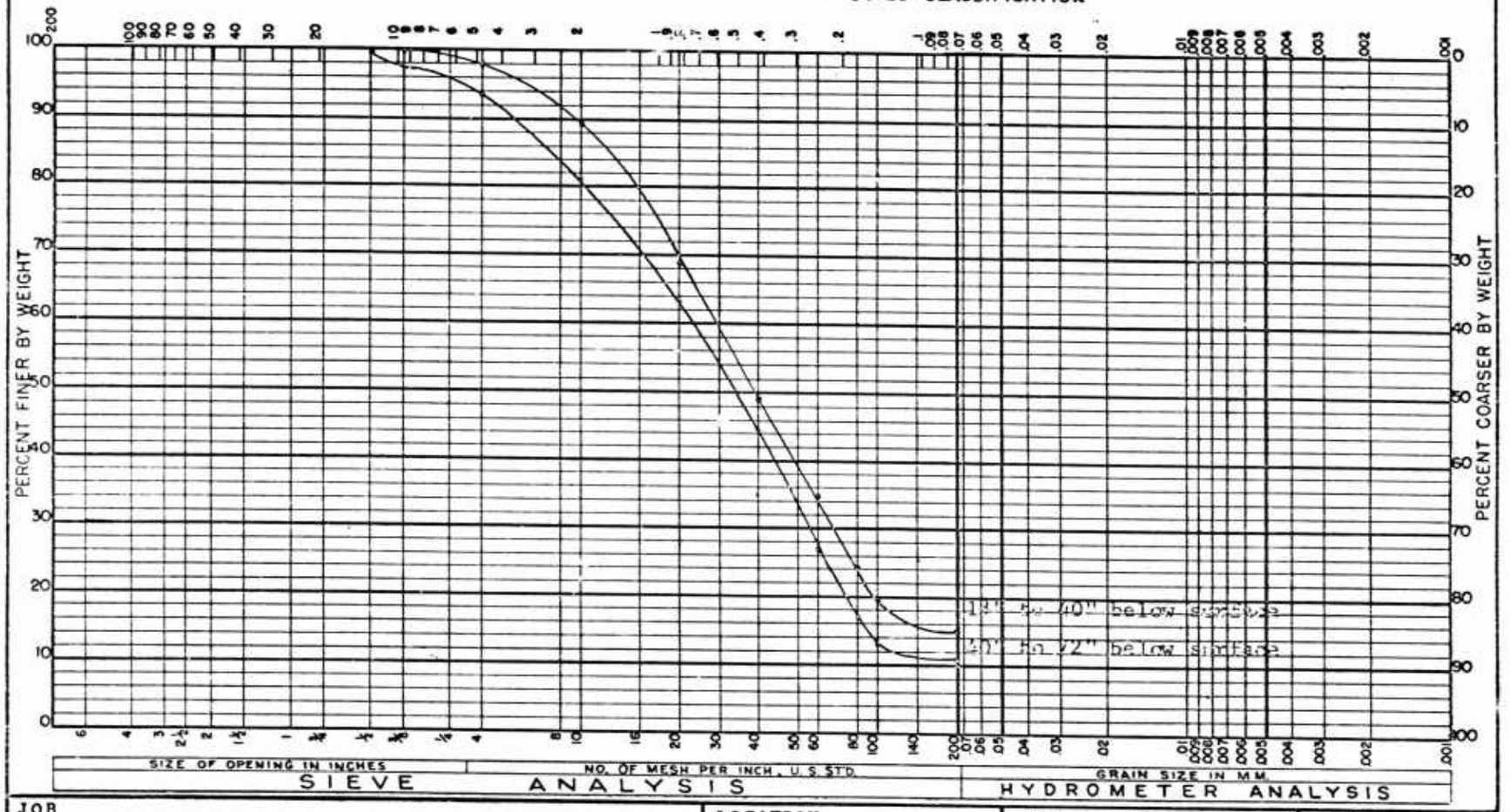
JOB	LOCATION	PLOTTED BY	DATE
USNAS Point Mugu, California	Runway 7-25 56+00	L. J. W.	17 Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND				SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



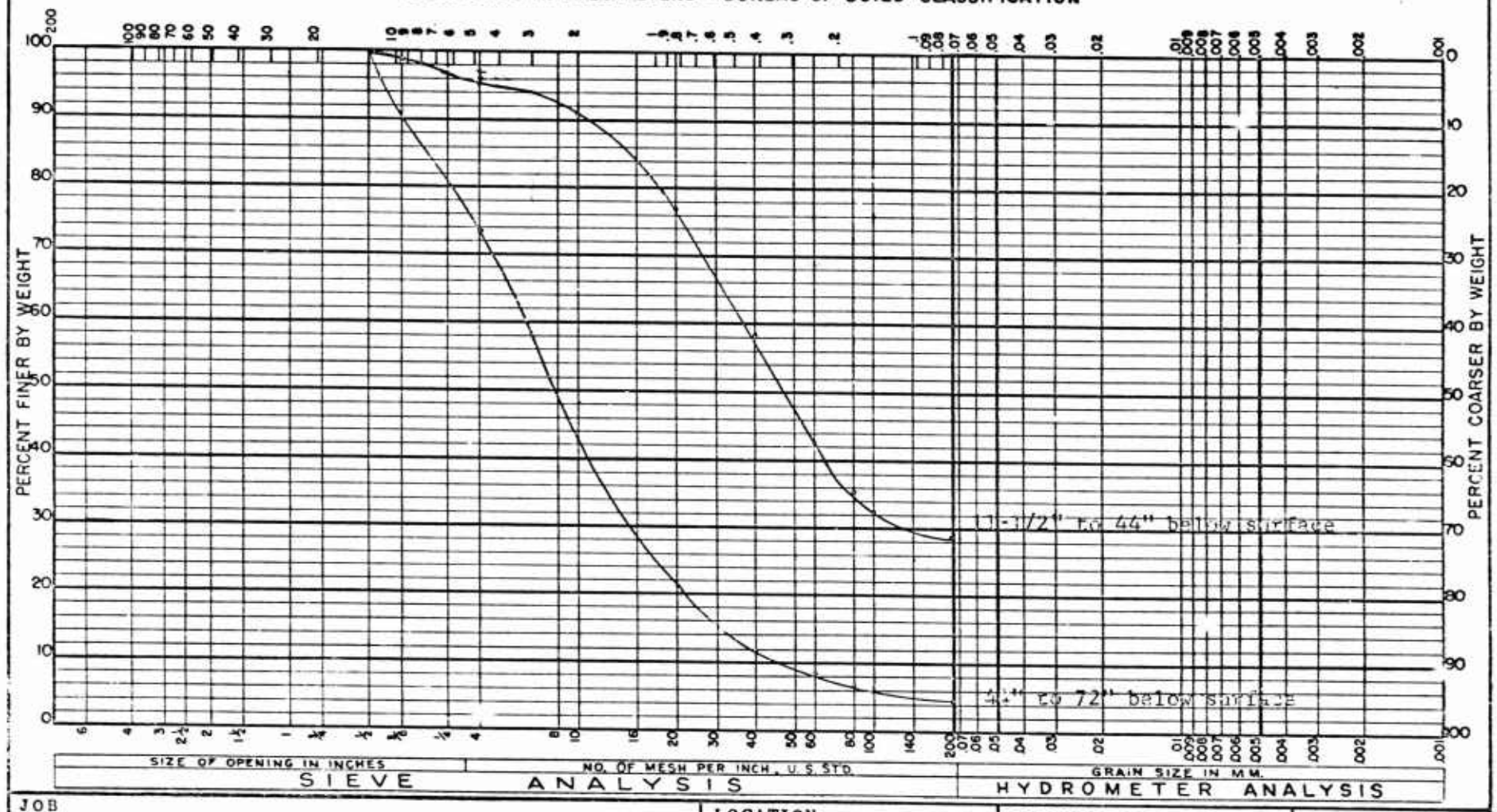
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 7-25 66+00	L. J. W.	Dec 65

IND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN MM.
SIEVE ANALYSIS		HYDROMETER ANALYSIS

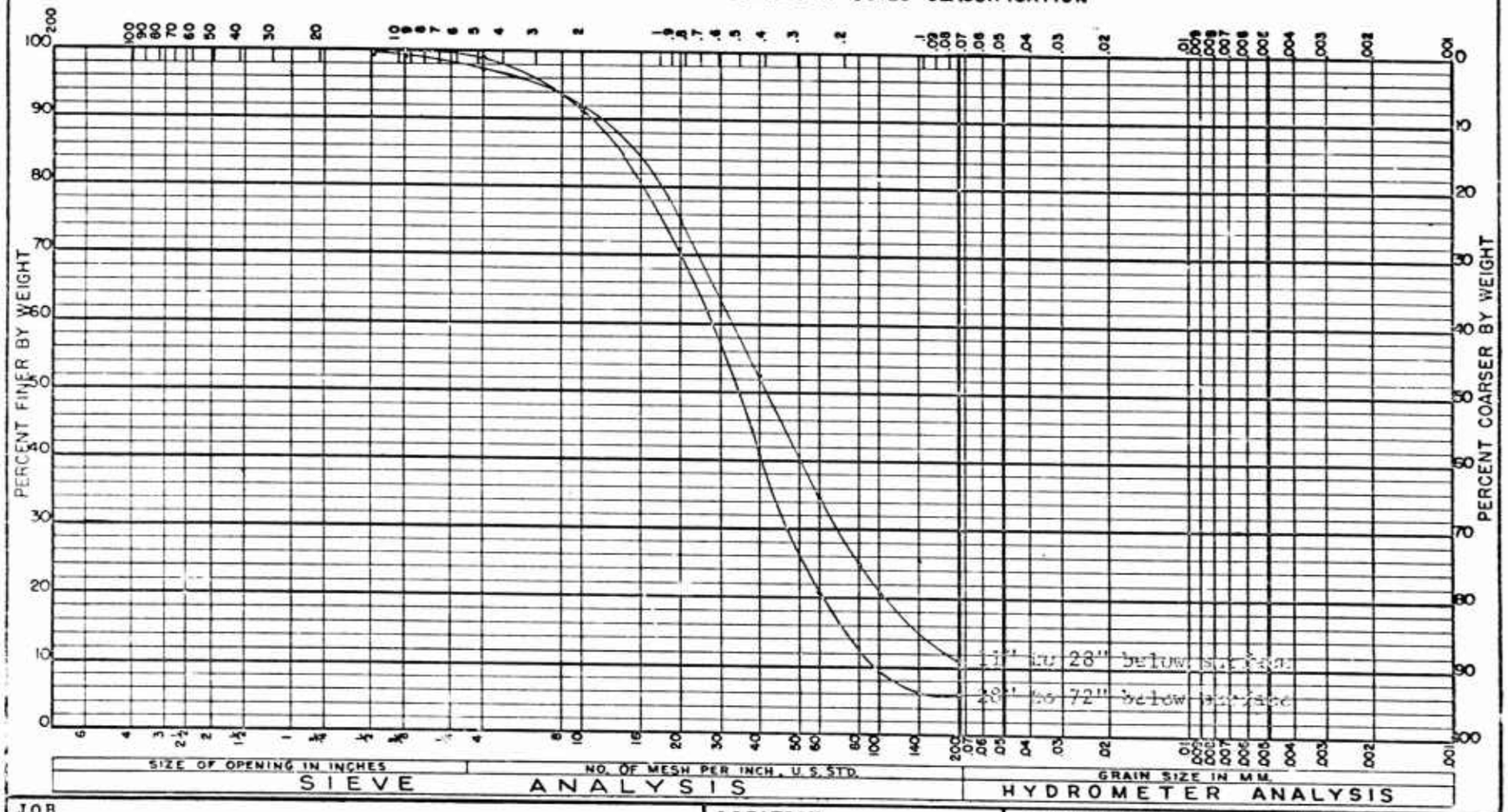
JOB	LOCATION	PLOTTED BY	DATE
USNAF Point Lake, California	Runway 7-25 7+400	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES — NO. OF MESH PER INCH, U.S. STD. — GRAIN SIZE IN M.M.

SIEVE ANALYSIS — HYDROMETER ANALYSIS

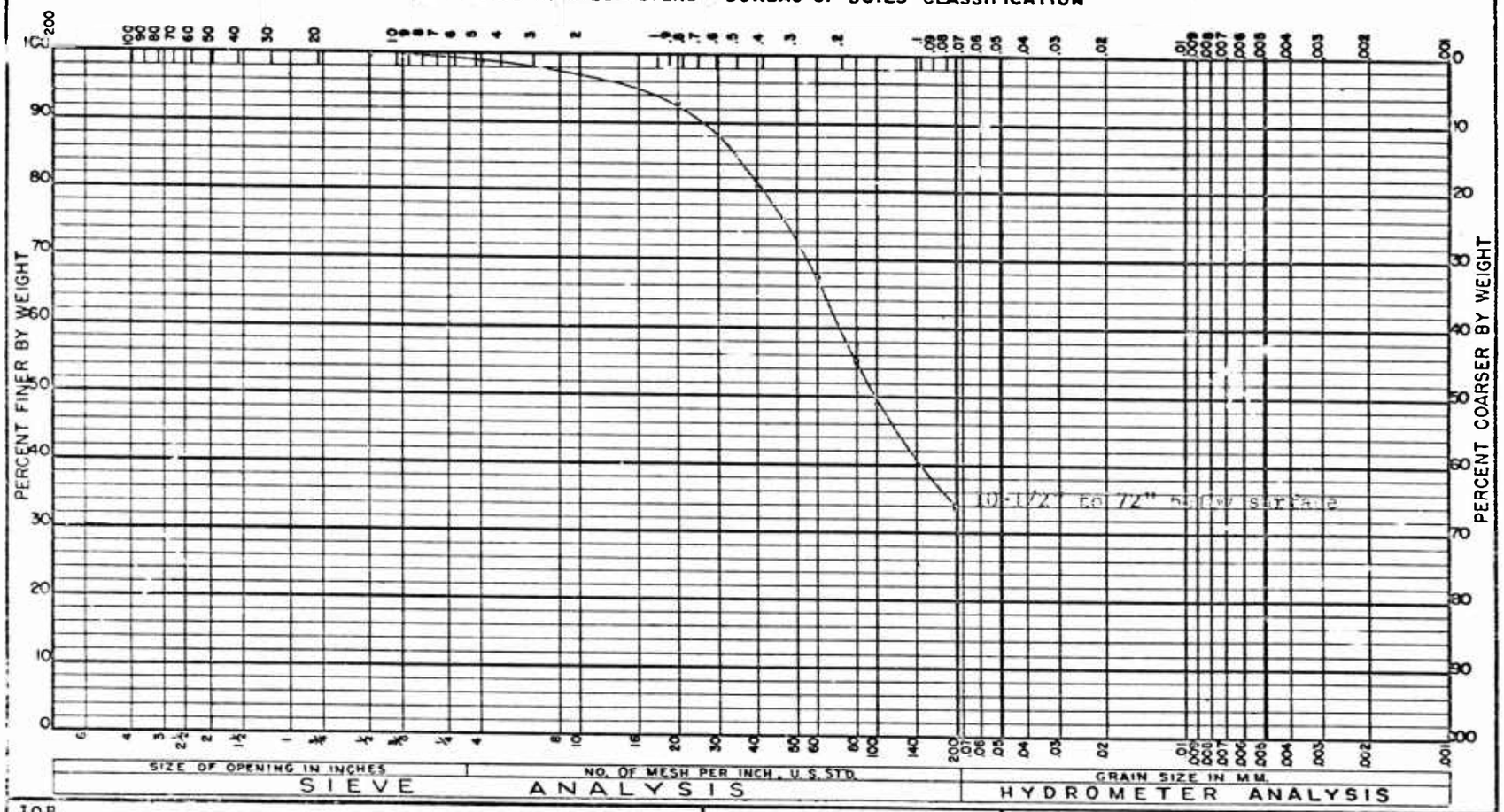
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 14-32 3+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS - BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN MM.
SIEVE	ANALYSIS	HYDROMETER ANALYSIS

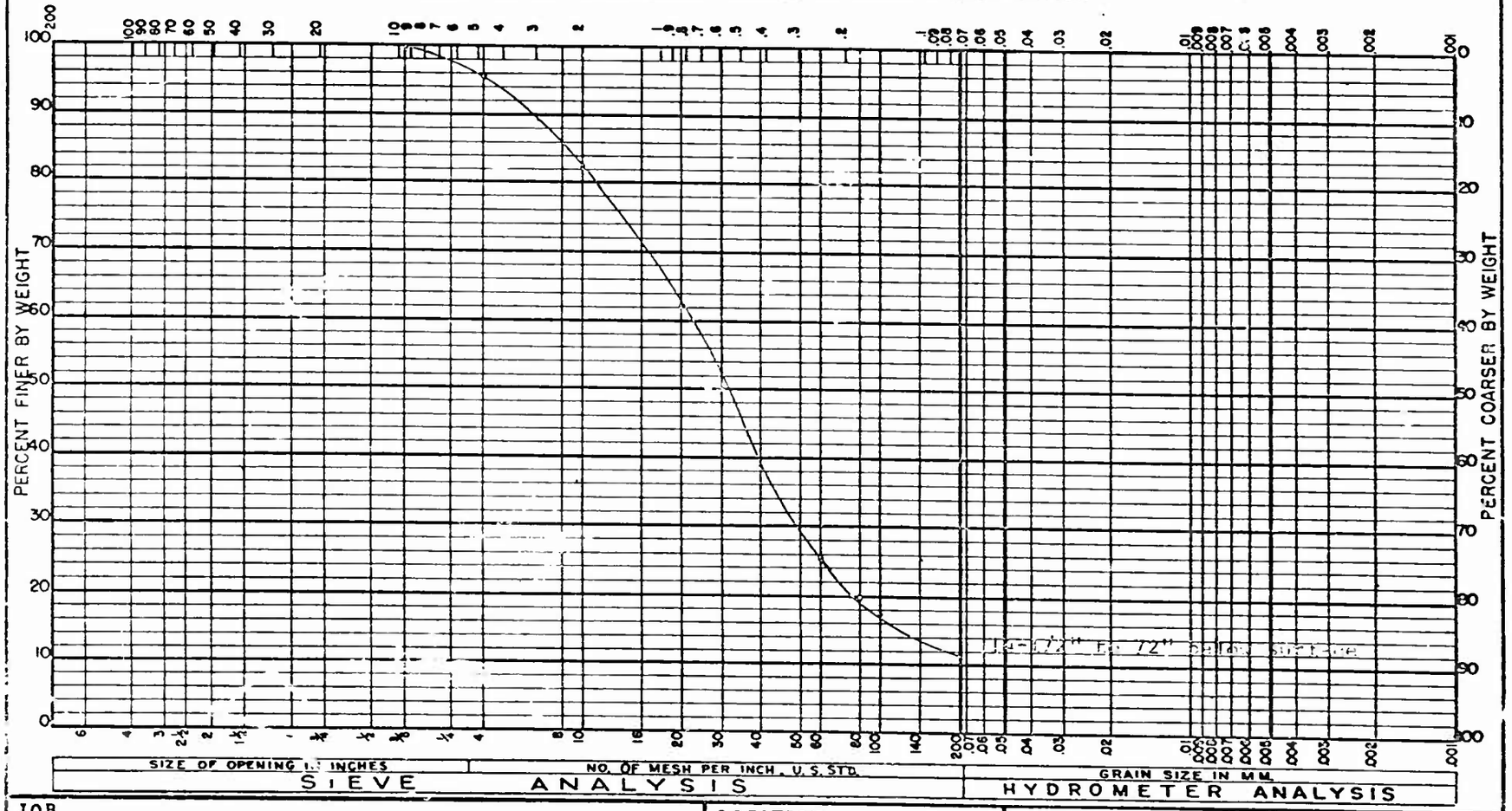
JOB	LOCATION	PLOTTED BY	DATE
[illegible] Lake, California	Runway 14-32 14+00	L. J. W.	Dec 65

IND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIEVE ANALYSIS — HYDROMETER ANALYSIS

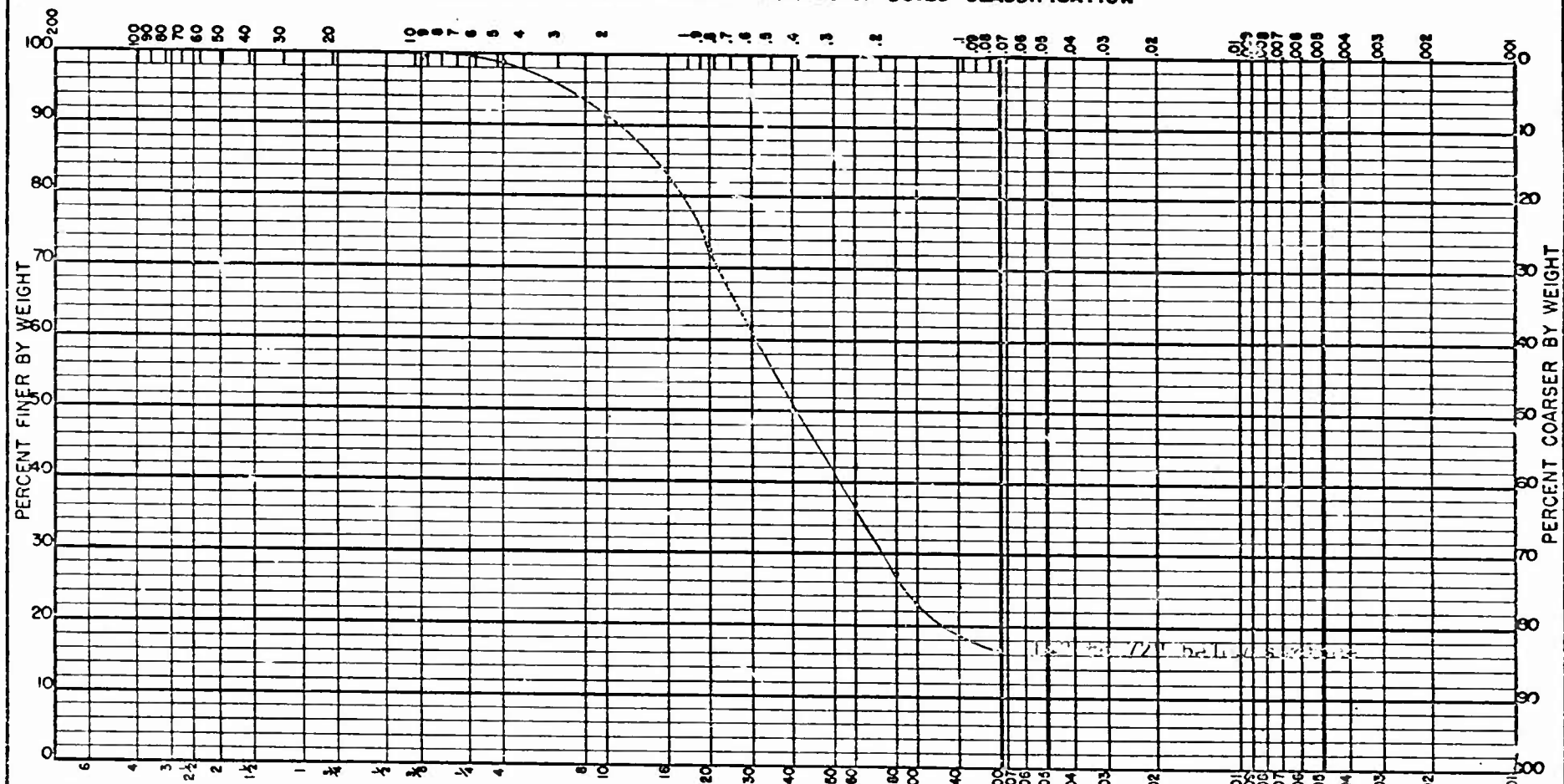
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 14-32 24+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIEVE ANALYSIS		HYDROMETER ANALYSIS
SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN MM.

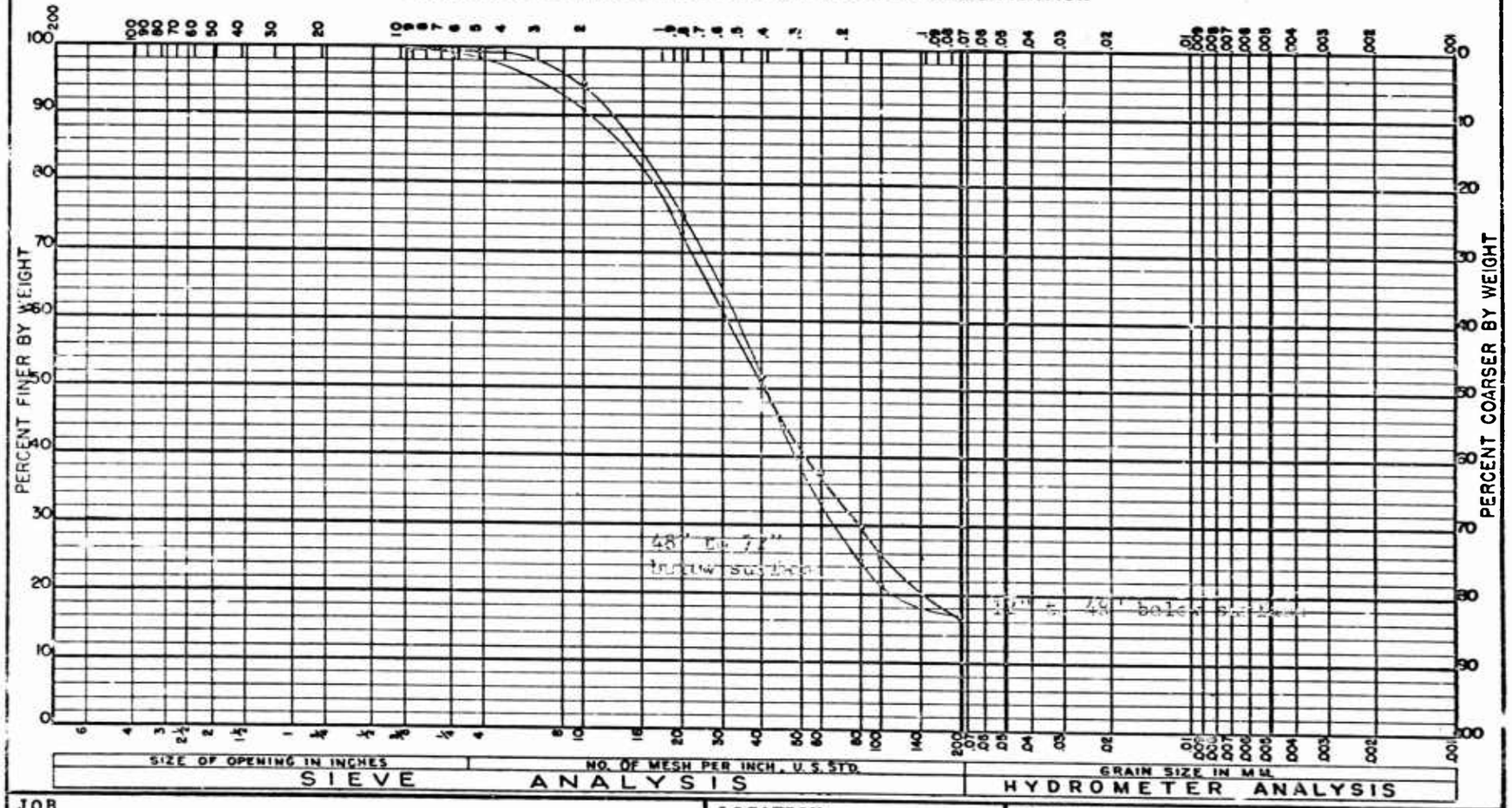
JOB	LOCATION	PLOTTED BY	DATE
[illegible]	[illegible] Runway 14-32 14+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES — NO. OF MESH PER INCH, U.S. STD. — GRAIN SIZE IN M.M.

SIEVE ANALYSIS — HYDROMETER ANALYSIS

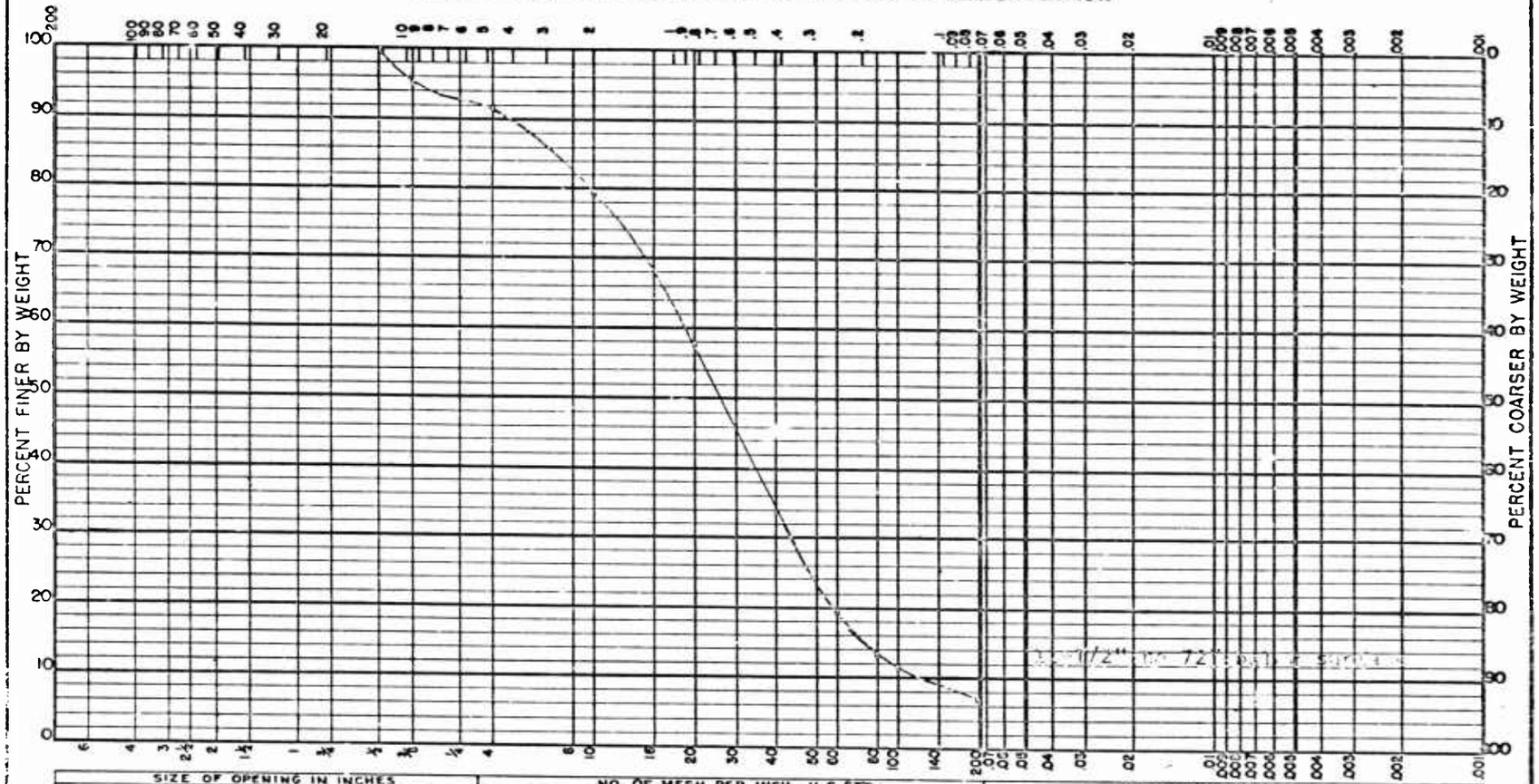
JOB	LOCATION	PLOTTED BY	DATE
USMC Yuma Lake, California	Runway 14-32 44+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



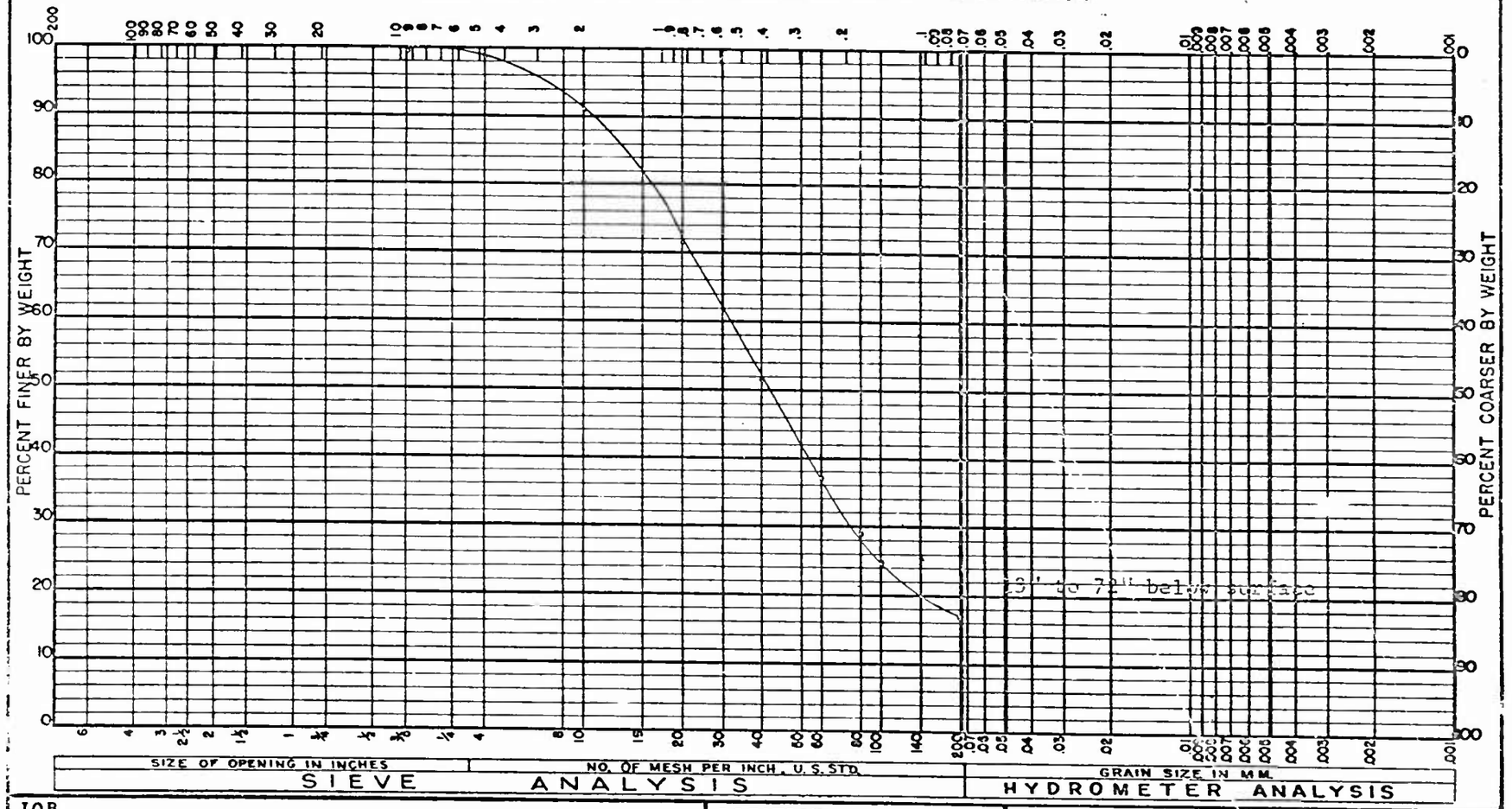
JOB	LOCATION	PLOTTED BY	DATE
[illegible]	Runway 14-32 52+00	L. J. W.	Dec. 63

IND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIEVE ANALYSIS		HYDROMETER ANALYSIS
SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN MM.

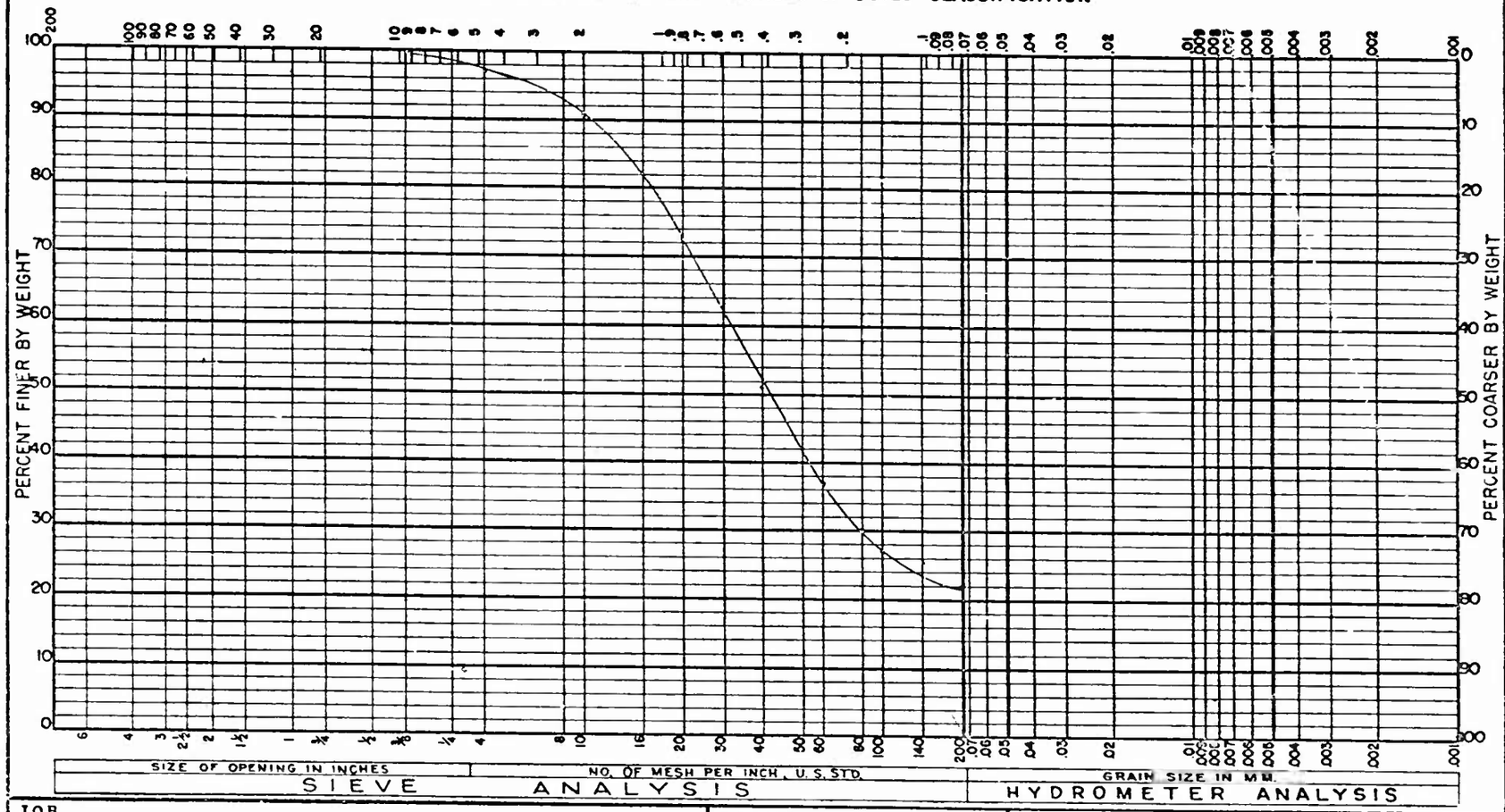
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Runway 14-32 62+00	L. J. W.	Dec 65

IND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN MM.
SIEVE	ANALYSIS	HYDROMETER ANALYSIS

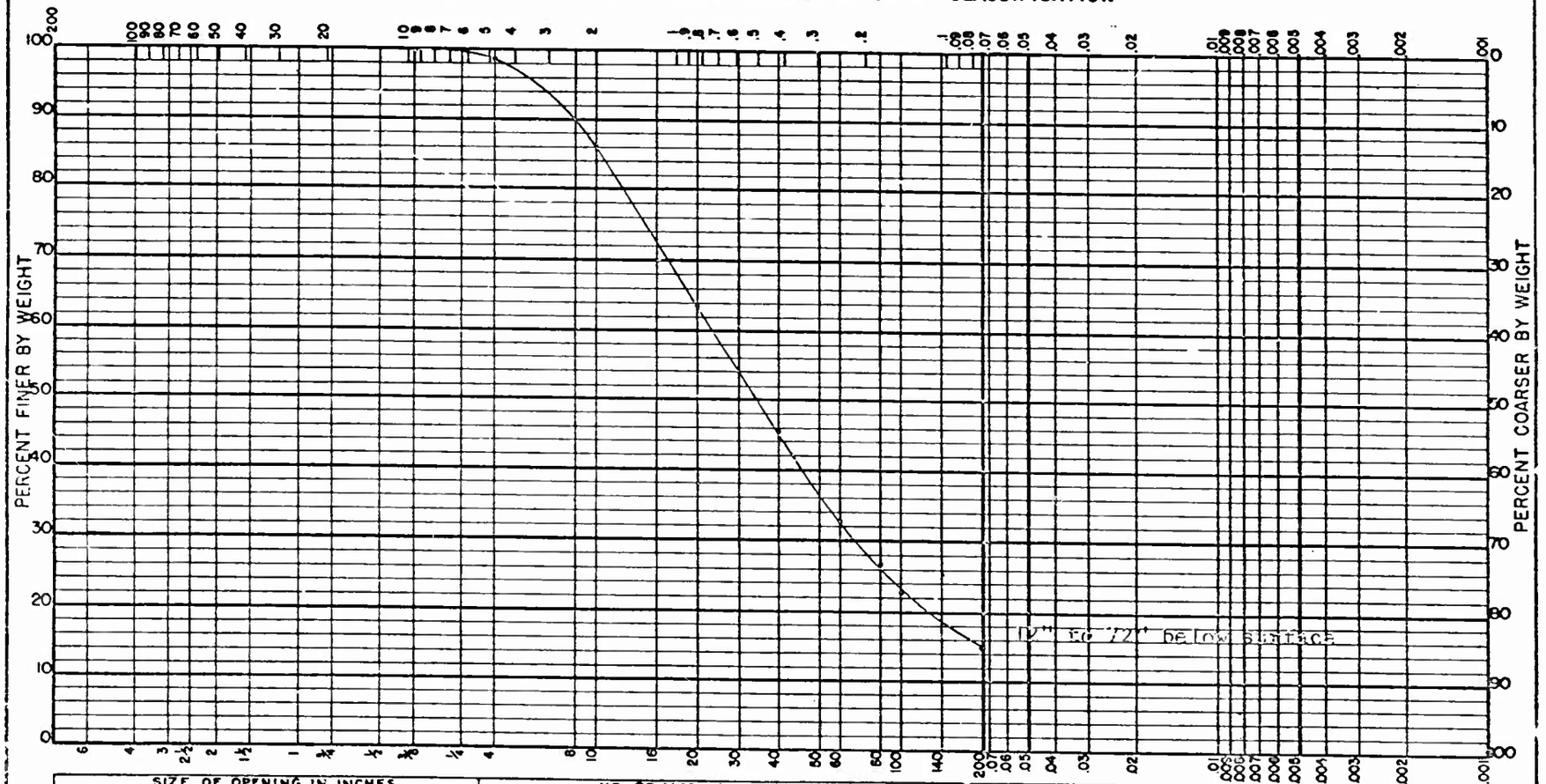
JOB	LOCATION	PLOTTED BY	DATE
USNAF Willa Lake, California	Runway 14-32 74+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN MM.
SIEVE ANALYSIS		HYDROMETER ANALYSIS

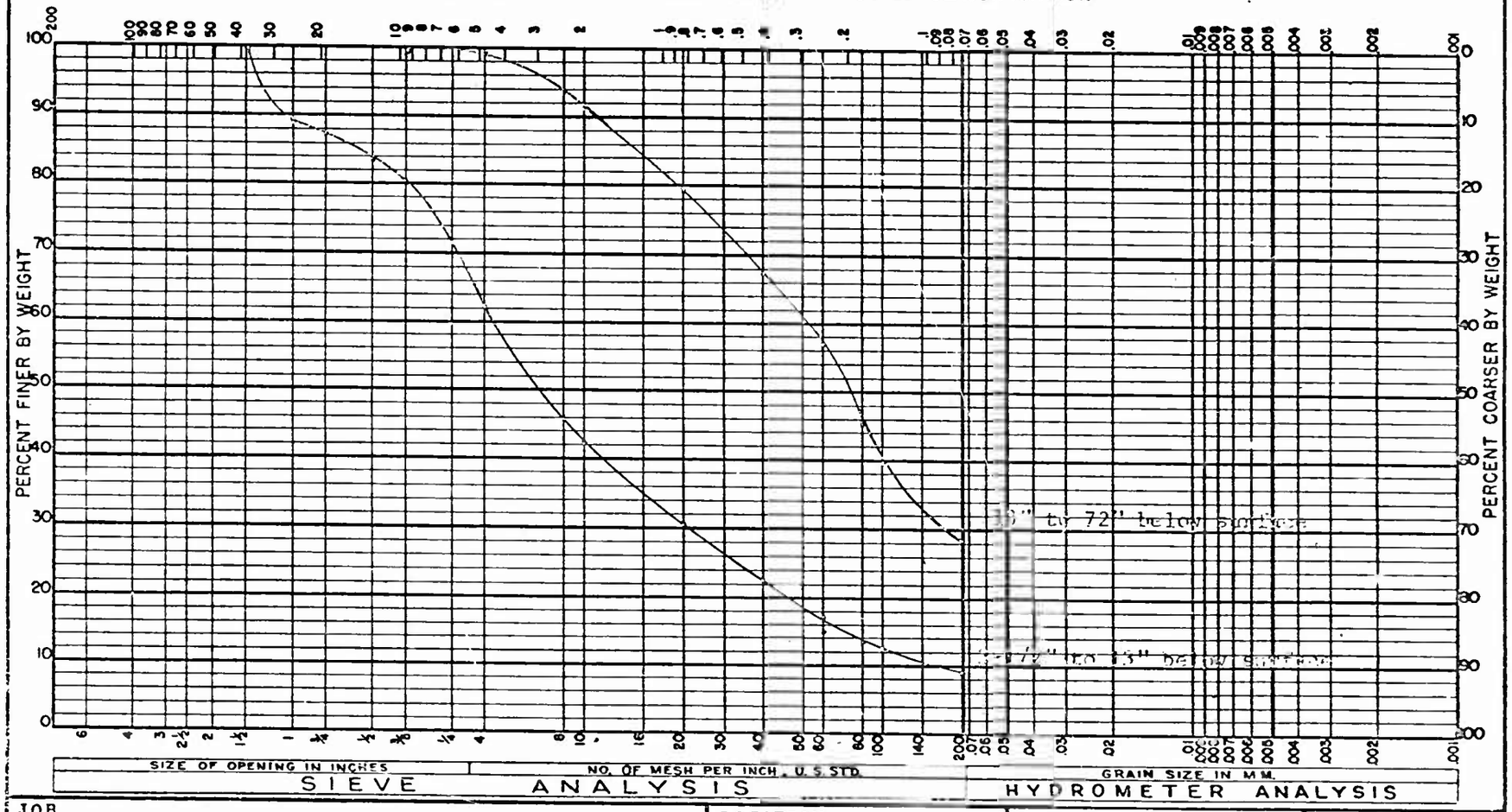
JOB	LOCATION	PLOTTED BY	DATE
NAVFAC China Lake, California	Runway 14-32 85+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES — NO. OF MESH PER INCH, U. S. STD. — GRAIN SIZE IN M.M.

SIEVE ANALYSIS — HYDROMETER ANALYSIS

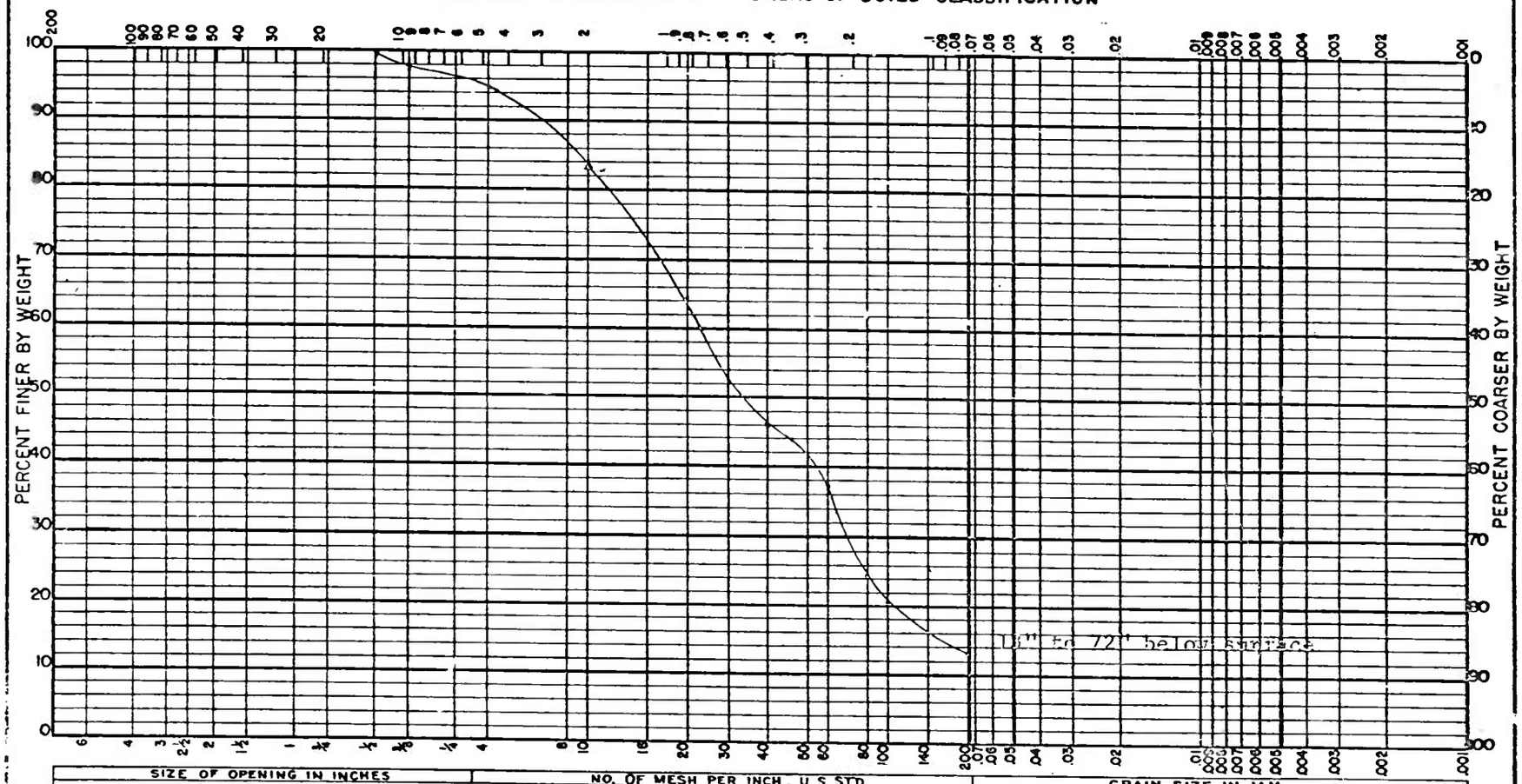
JOB	LOCATION	PLOTTED BY	DATE
USNAV Salton Sea, Calif.	Medway 14-32 10+00	L. J. W.	Dec 65

IND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



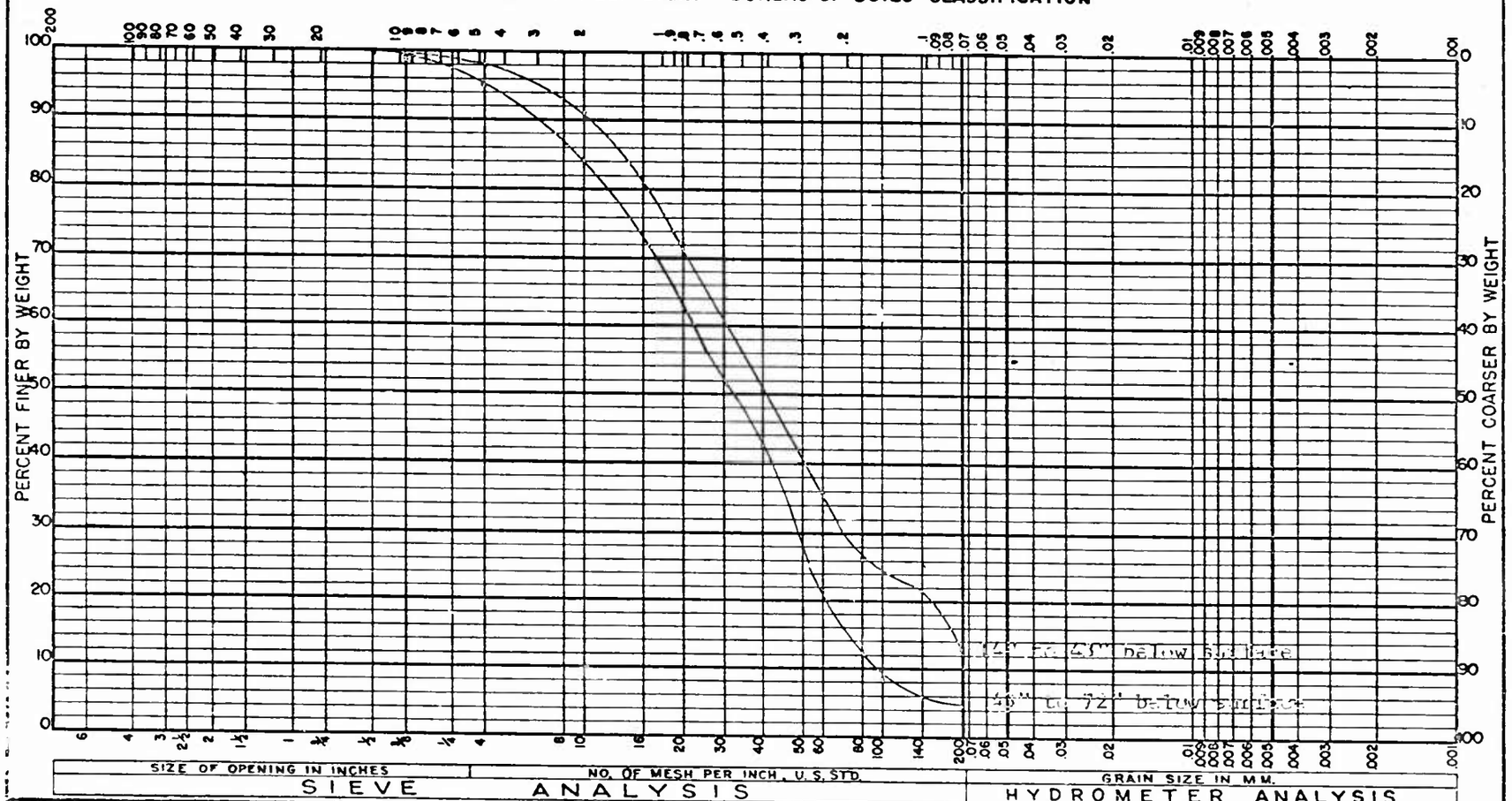
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 20+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN MM.
SIEVE ANALYSIS		HYDROMETER ANALYSIS

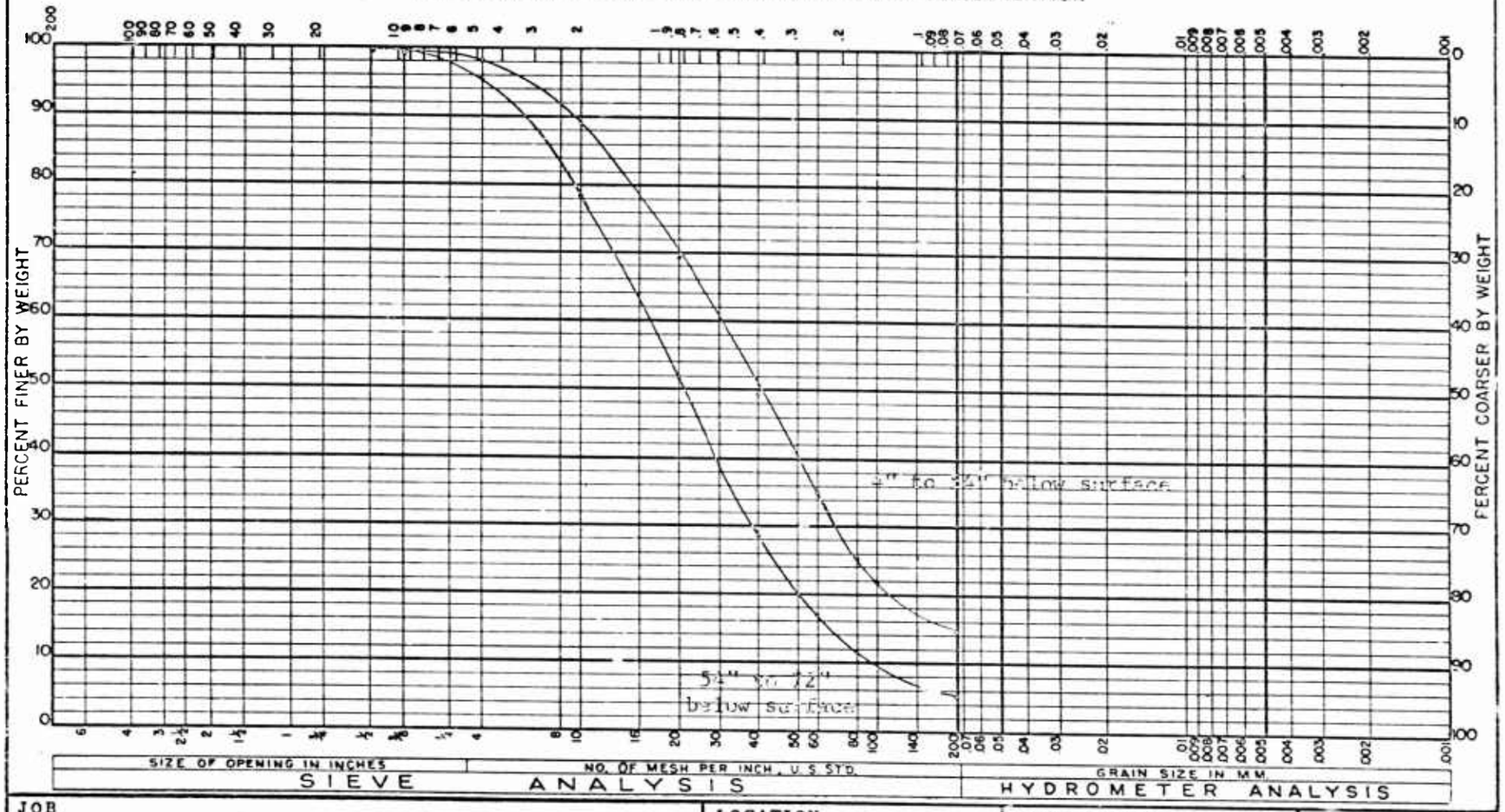
JOB	LOCATION	PLOTTED BY	DATE
USNAF Johnstown Lake, Bellefonte, Pa.	Taxiway 14-32 30+00	J. J. W.	Dec 65

IND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



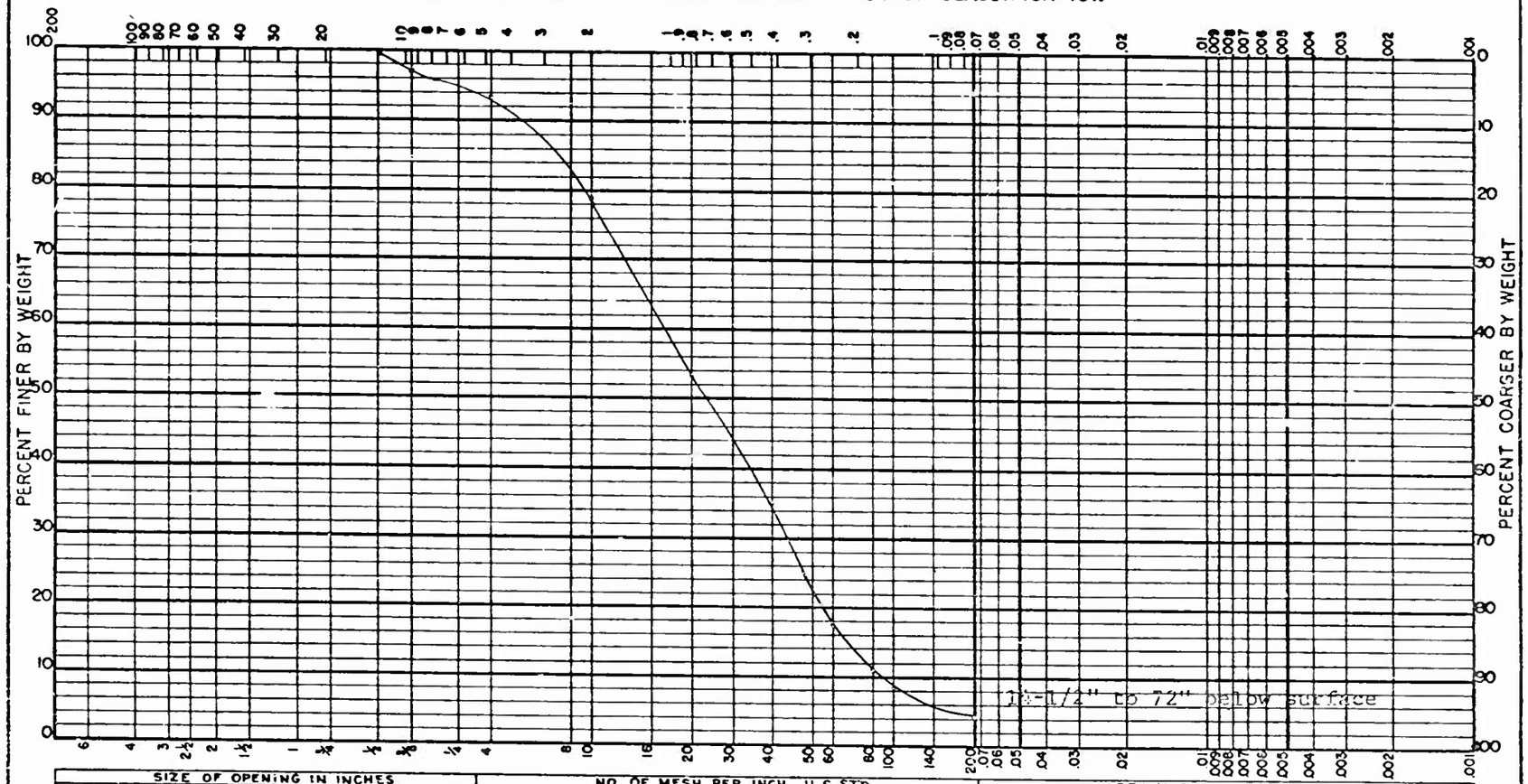
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 40+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



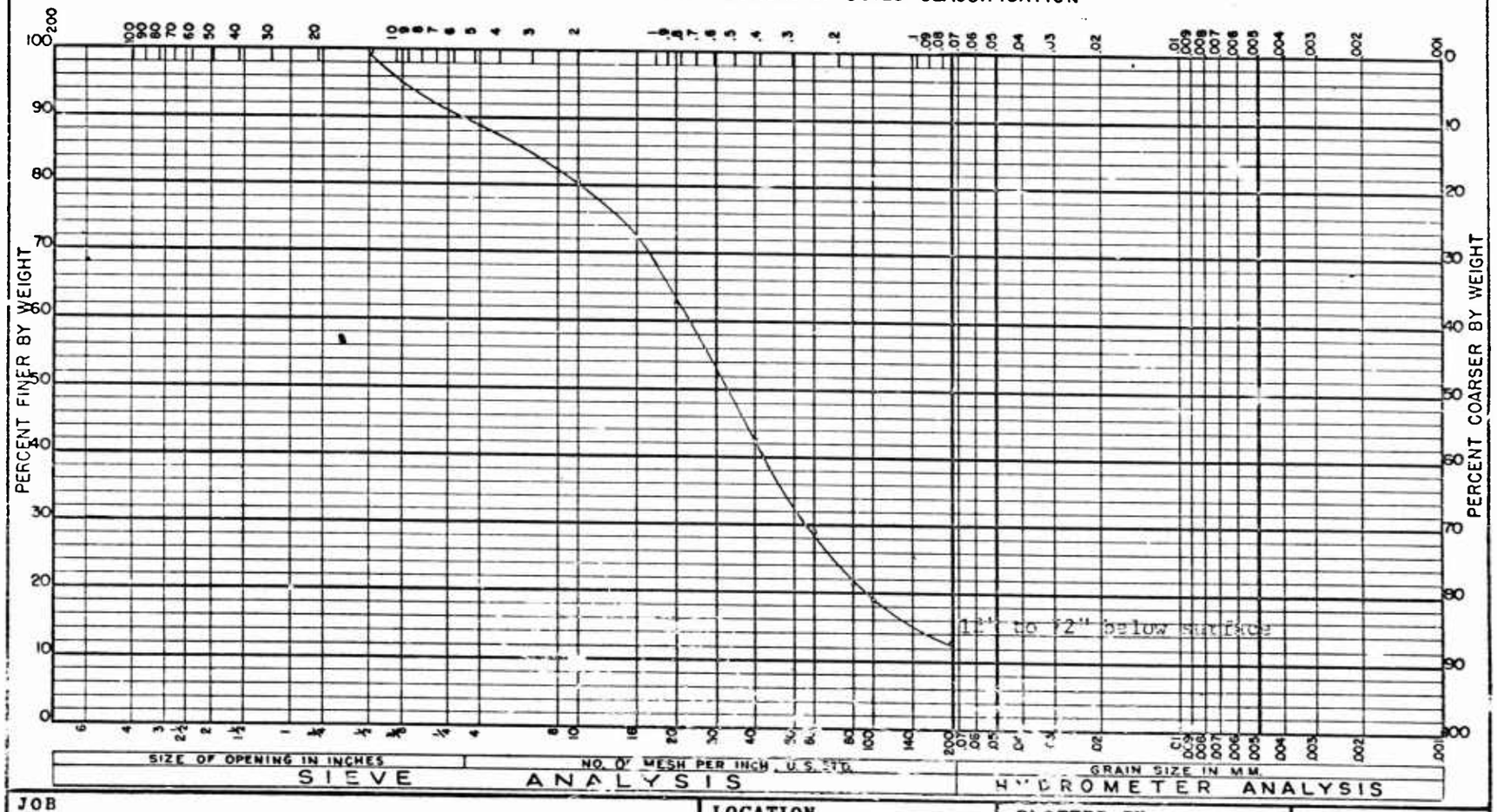
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 50+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



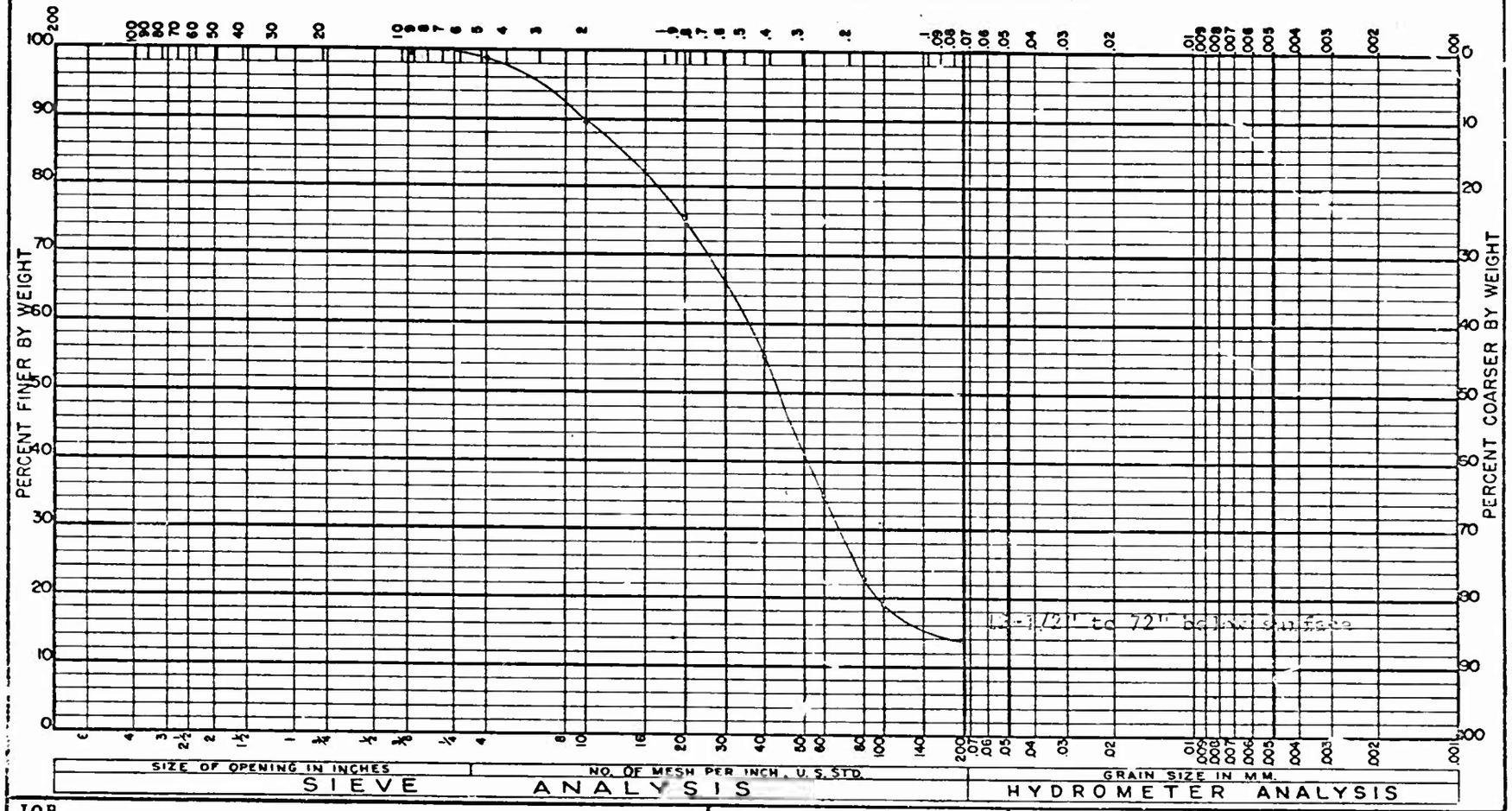
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 60+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES — SIEVE ANALYSIS	NO. OF MESH PER INCH, U.S. STD. — SIEVE ANALYSIS	GRAIN SIZE IN MM. — HYDROMETER ANALYSIS

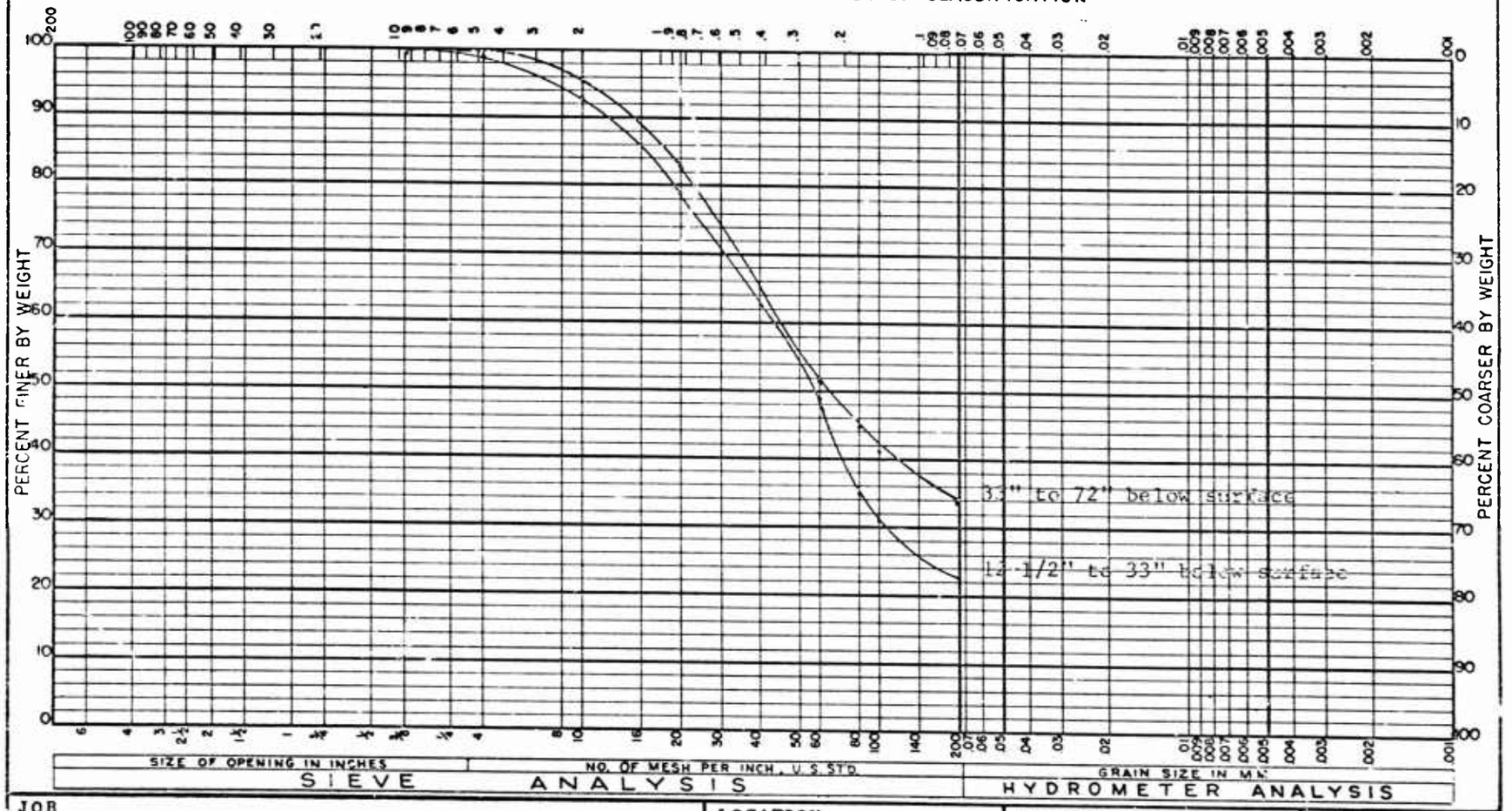
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 73+00	L. J. W.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

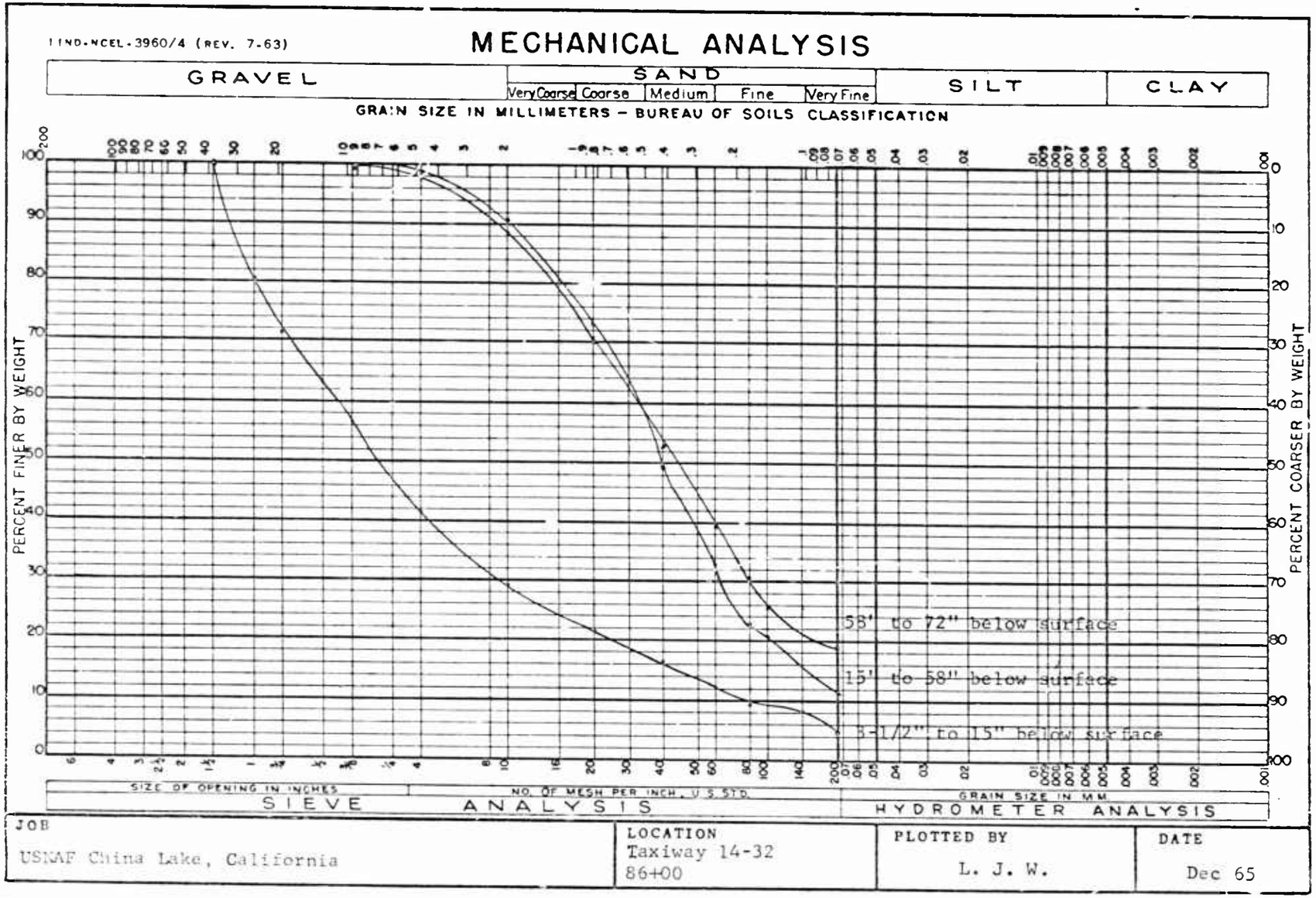
MECHANICAL ANALYSIS

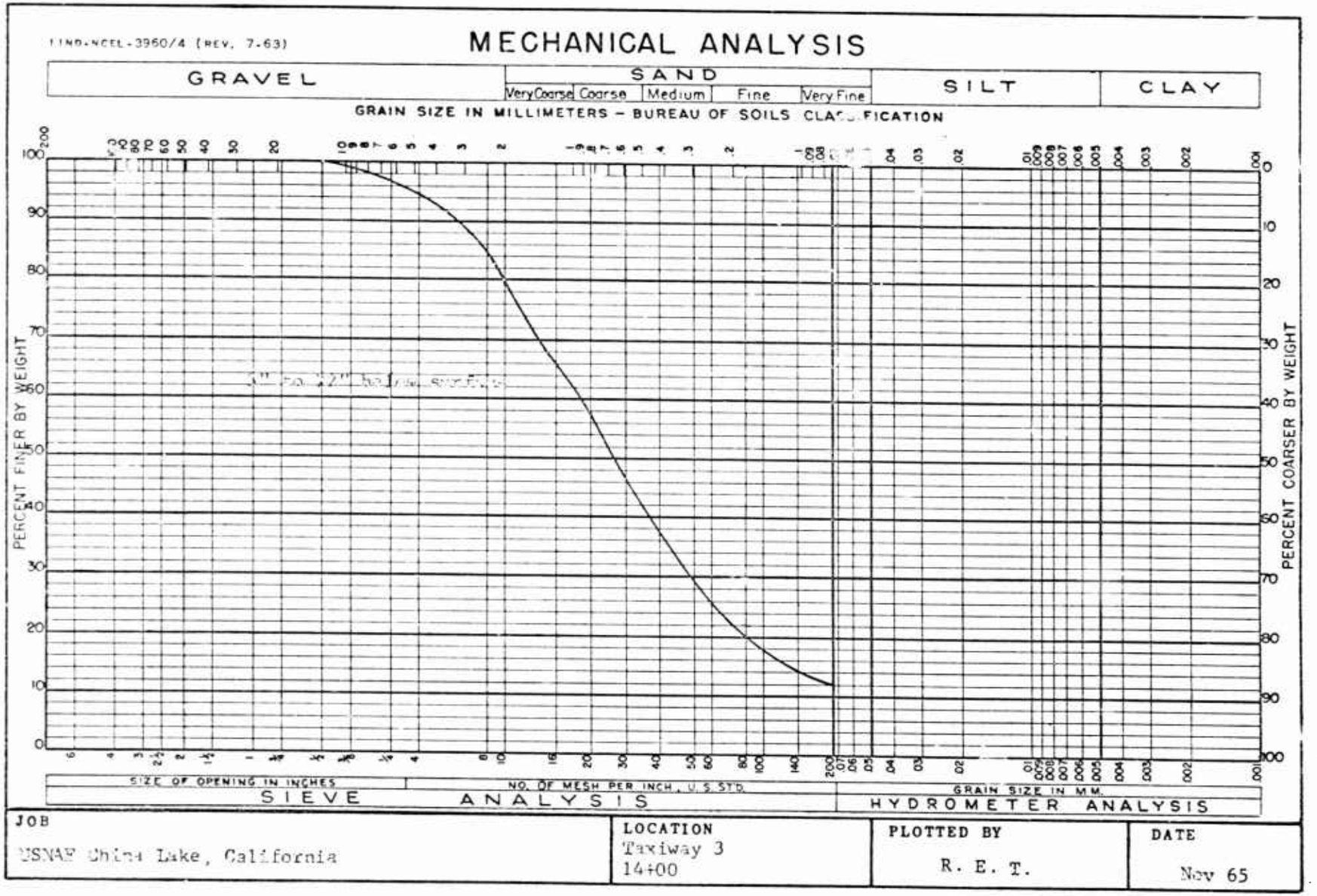
GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 14-32 83+00	L. J. W.	Dec 65


NAVFAC-NCEL-3960/4 (REV. 7-63)
MECHANICAL ANALYSIS
GRAVEL
SAND
Very Coarse
Coarse
Medium
Fine
Very Fine
SILT
CLAY
GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION
PERCENT FINER BY WEIGHT
PERCENT COARSER BY WEIGHT
58" to 72" below surface
15" to 58" below surface
3-1/2" to 15" below surface
SIZE OF OPENING IN INCHES
NO. OF MESH PER INCH, U.S. STD.
GRAIN SIZE IN M.M.
SIEVE ANALYSIS
HYDROMETER ANALYSIS
JOB
USNAF China Lake, California
LOCATION
Taxiway 14-32
86+00
PLOTTED BY
L. J. W.
DATE
Dec 65

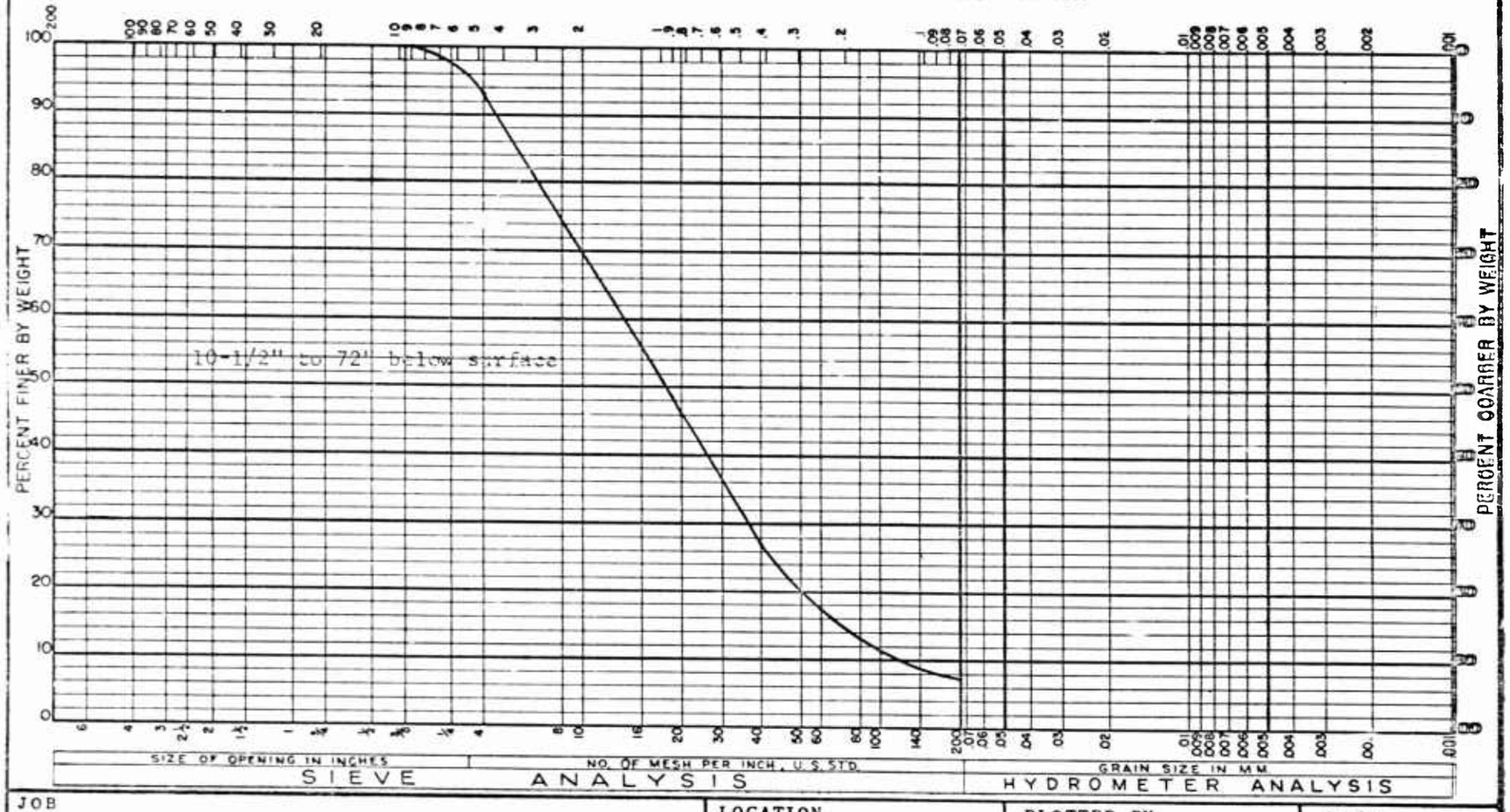

LIND-NCEL-3960/4 (REV. 7-63)
MECHANICAL ANALYSIS
GRAVEL
SAND
Very Coarse
Coarse
Medium
Fine
Very Fine
SILT
CLAY
GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION
PERCENT FINER BY WEIGHT
PERCENT COARSER BY WEIGHT
SIZE OF OPENING IN INCHES
NO. OF MESH PER INCH, U.S. STD.
GRAIN SIZE IN M.M.
SIEVE ANALYSIS
HYDROMETER ANALYSIS
JOB
USNAF China Lake, California
LOCATION
Taxiway 3
14+00
PLOTTED BY
R. E. T.
DATE
Nov 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



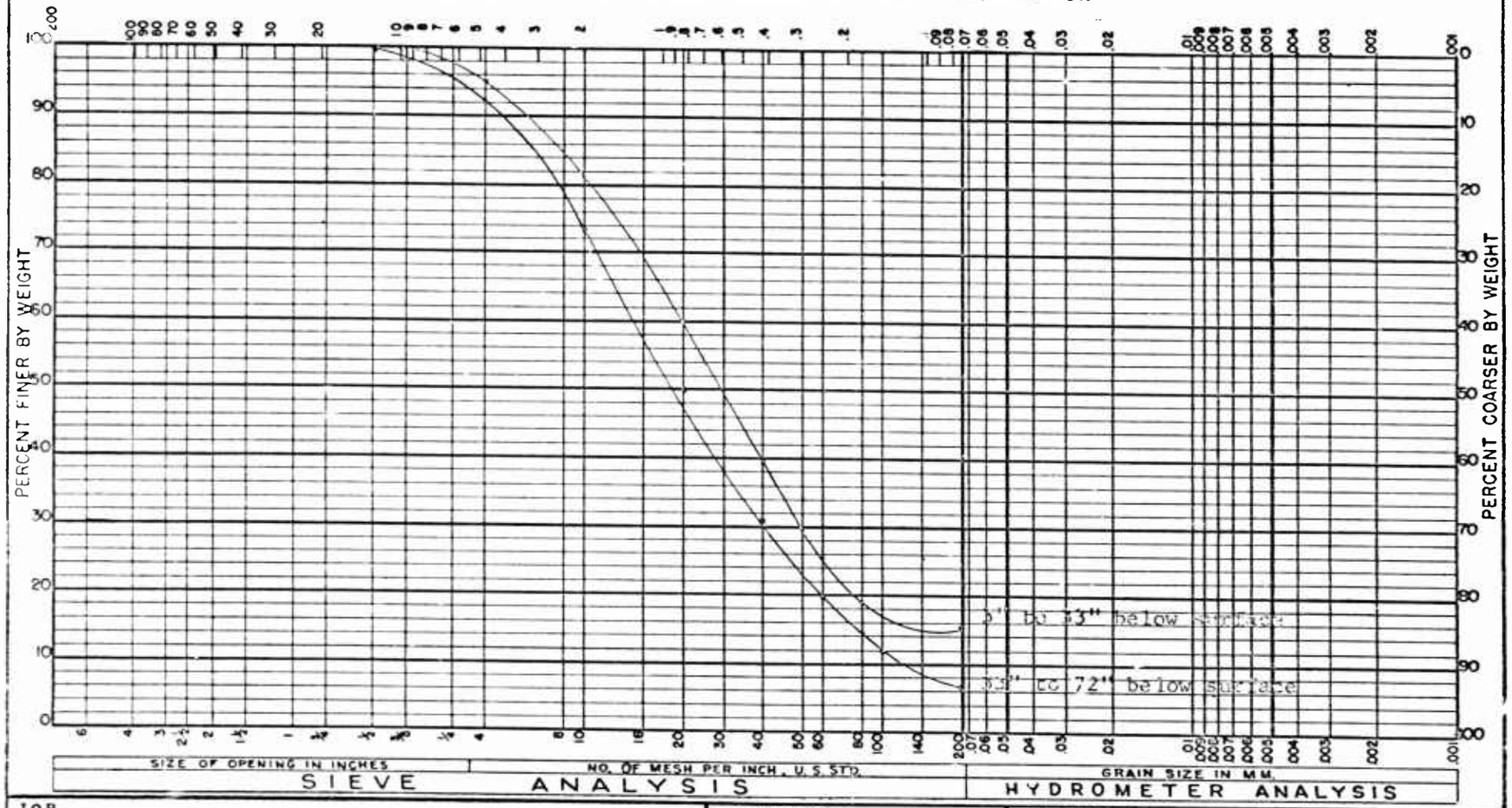
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 3 21+00	R. E. T.	Nov 65

FIND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN M.M.
SIEVE	ANALYSIS	HYDROMETER ANALYSIS

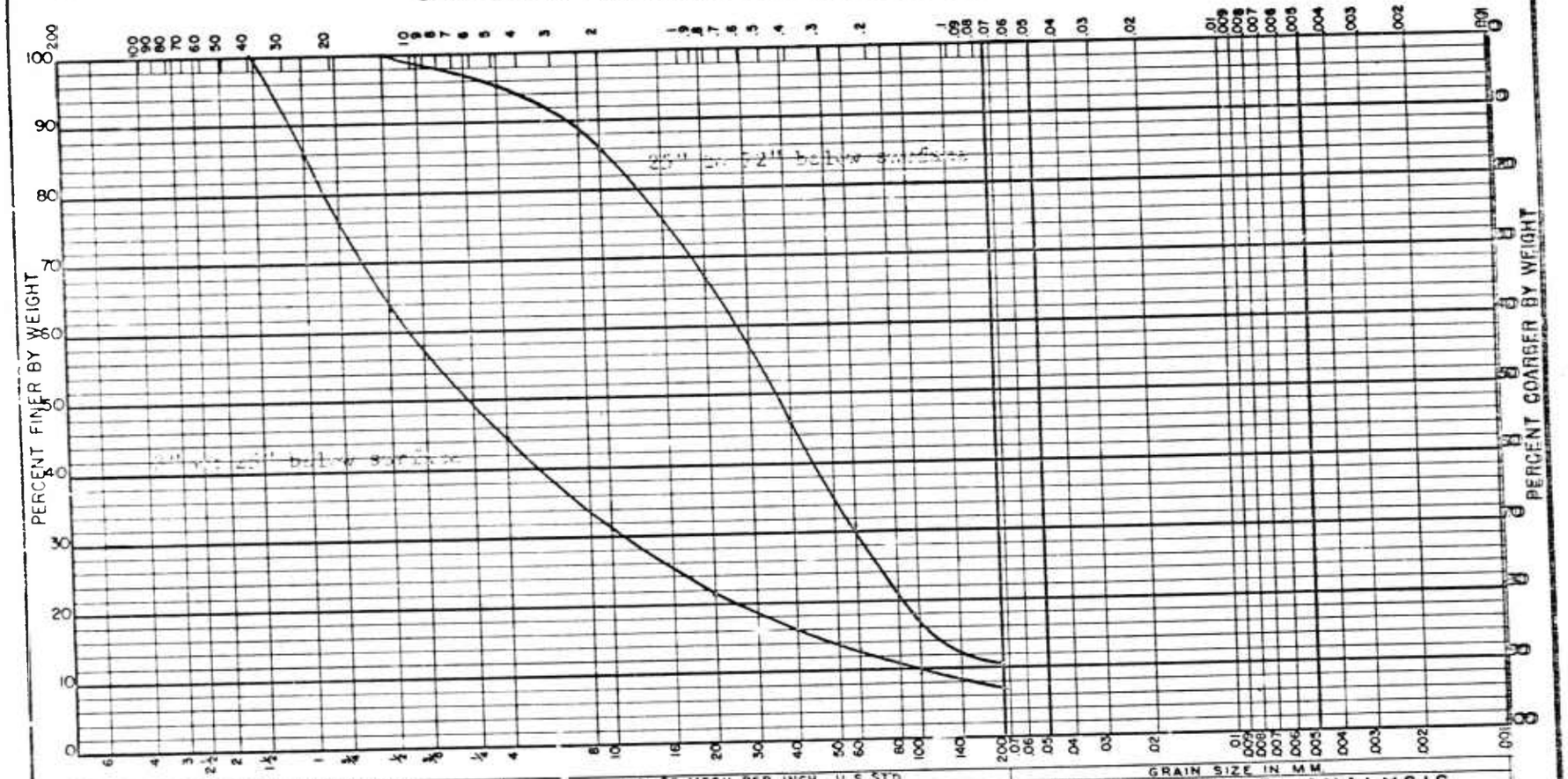
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 3 24+00	L. J. W.	15 Nov 65

MECHANICAL ANALYSIS

NAVFAC-NCEL-3960/4 (REV. 7-63)

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



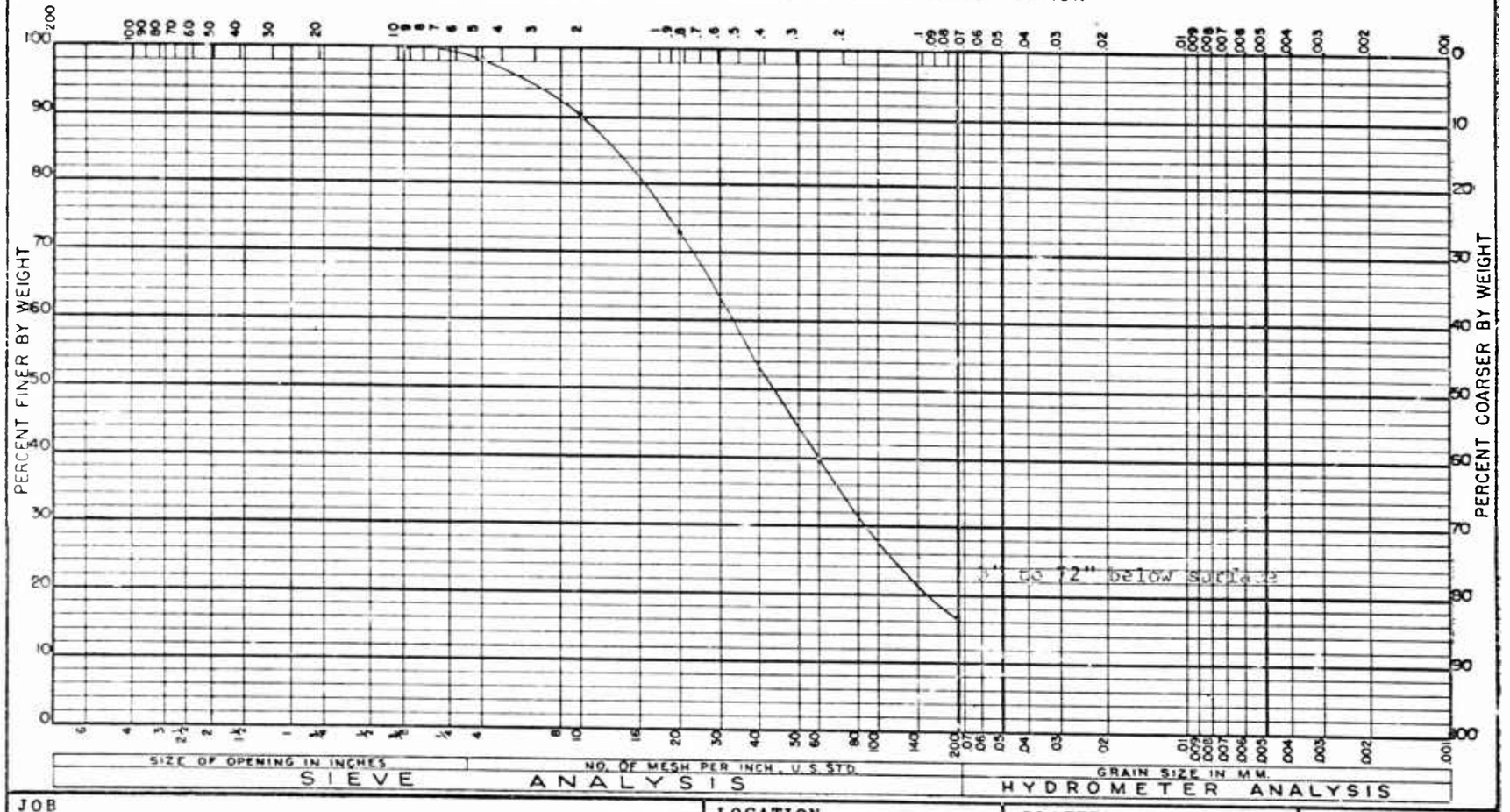
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 3 36400	R. E. T.	Nov 65

LIND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES — NO. OF MESH PER INCH, U.S. STD. — GRAIN SIZE IN M.M.

SIEVE ANALYSIS — HYDROMETER ANALYSIS

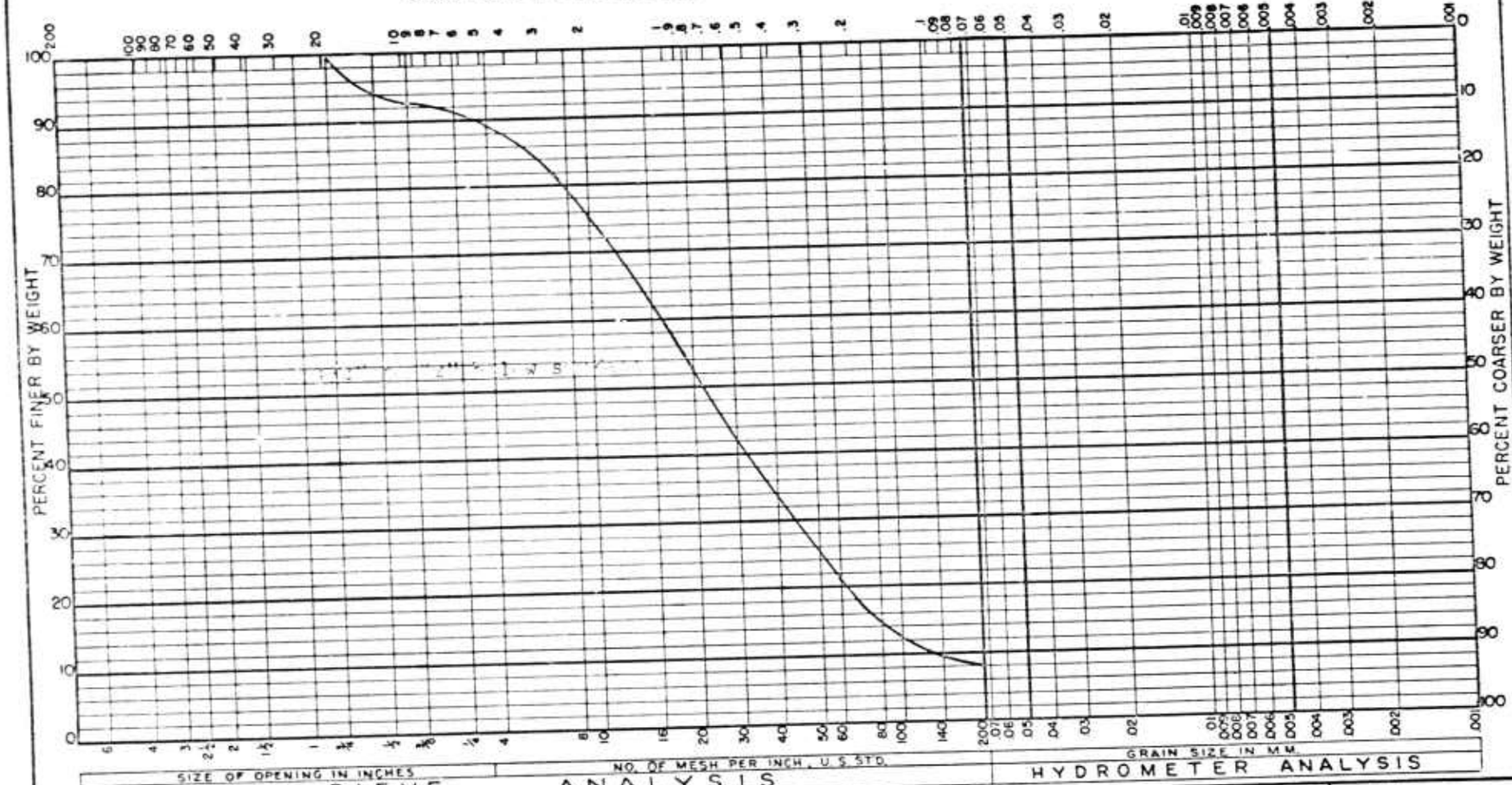
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 7 10+00	L. J. W.	17 Nov 65

MECHANICAL ANALYSIS

NAVFAC-NCEL-3960/4 (REV. 7-63)

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



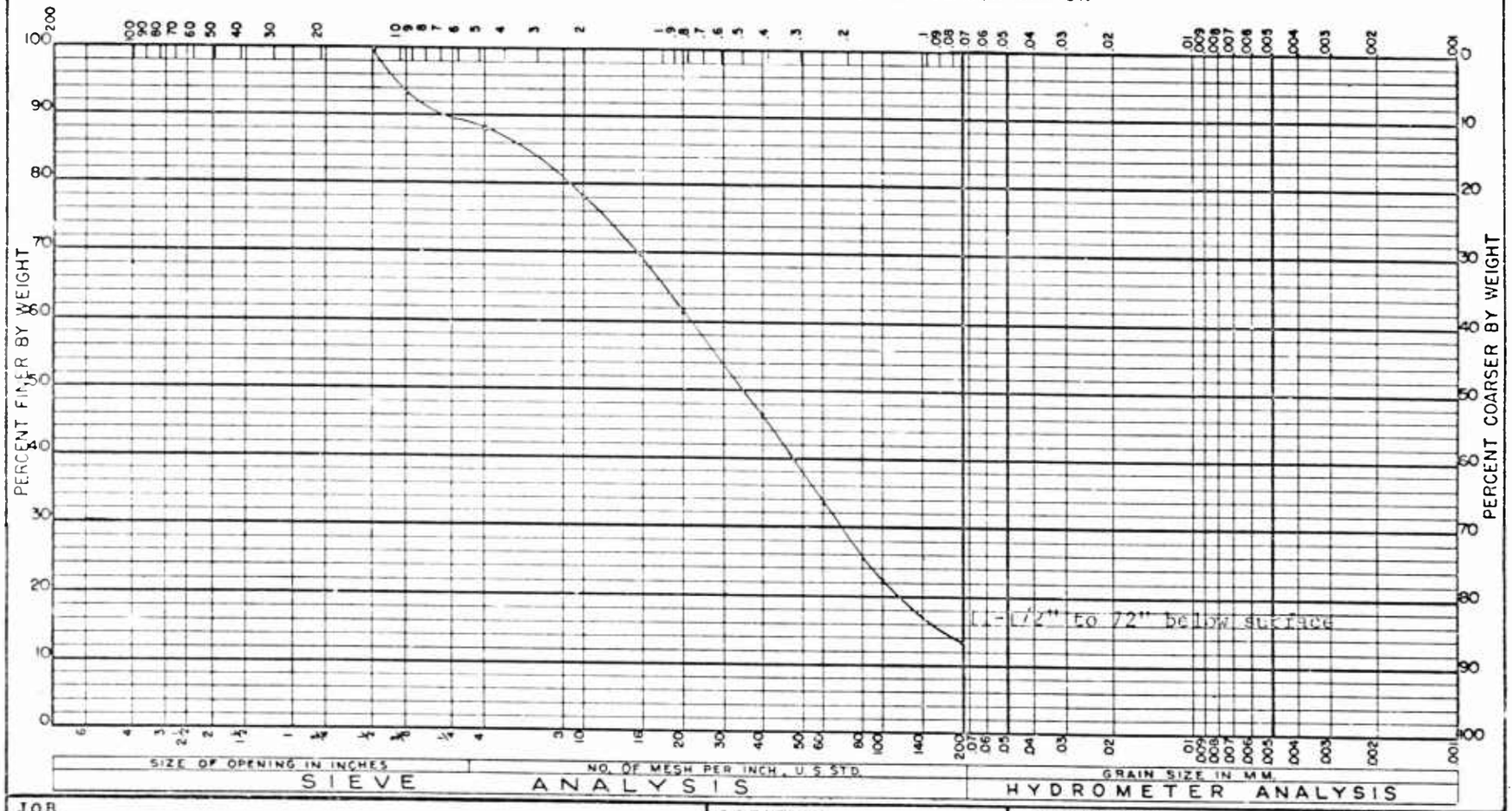
JOB	LOCATION	PLOTTED BY	DATE
USA Clear Lake, California	Causeway 21 7+00	E. E. E.	Nov 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S STD.	GRAIN SIZE IN M.M.
SIEVE ANALYSIS		HYDROMETER ANALYSIS

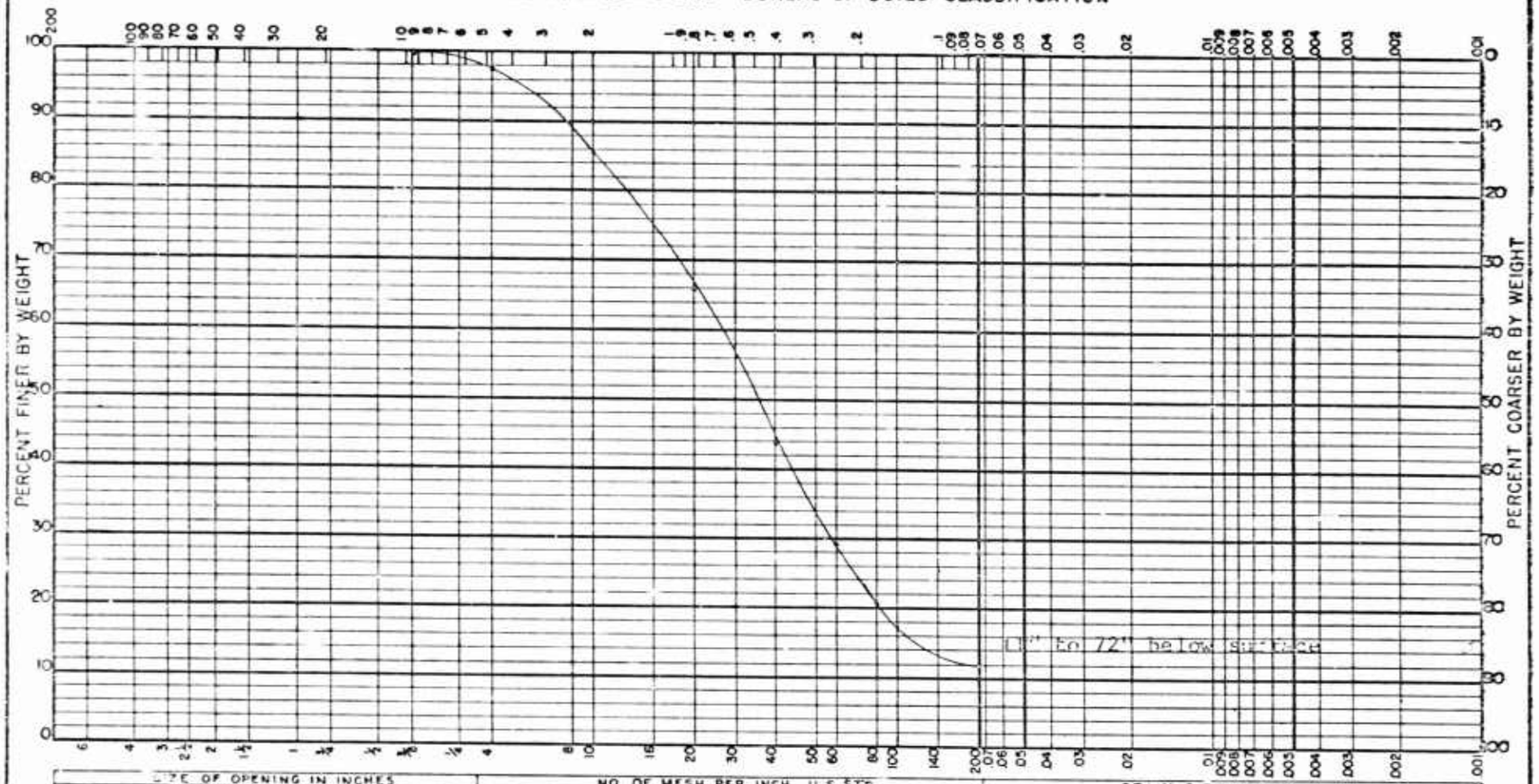
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Taxiway 21 18+00	L. J. W.	17 Nov 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

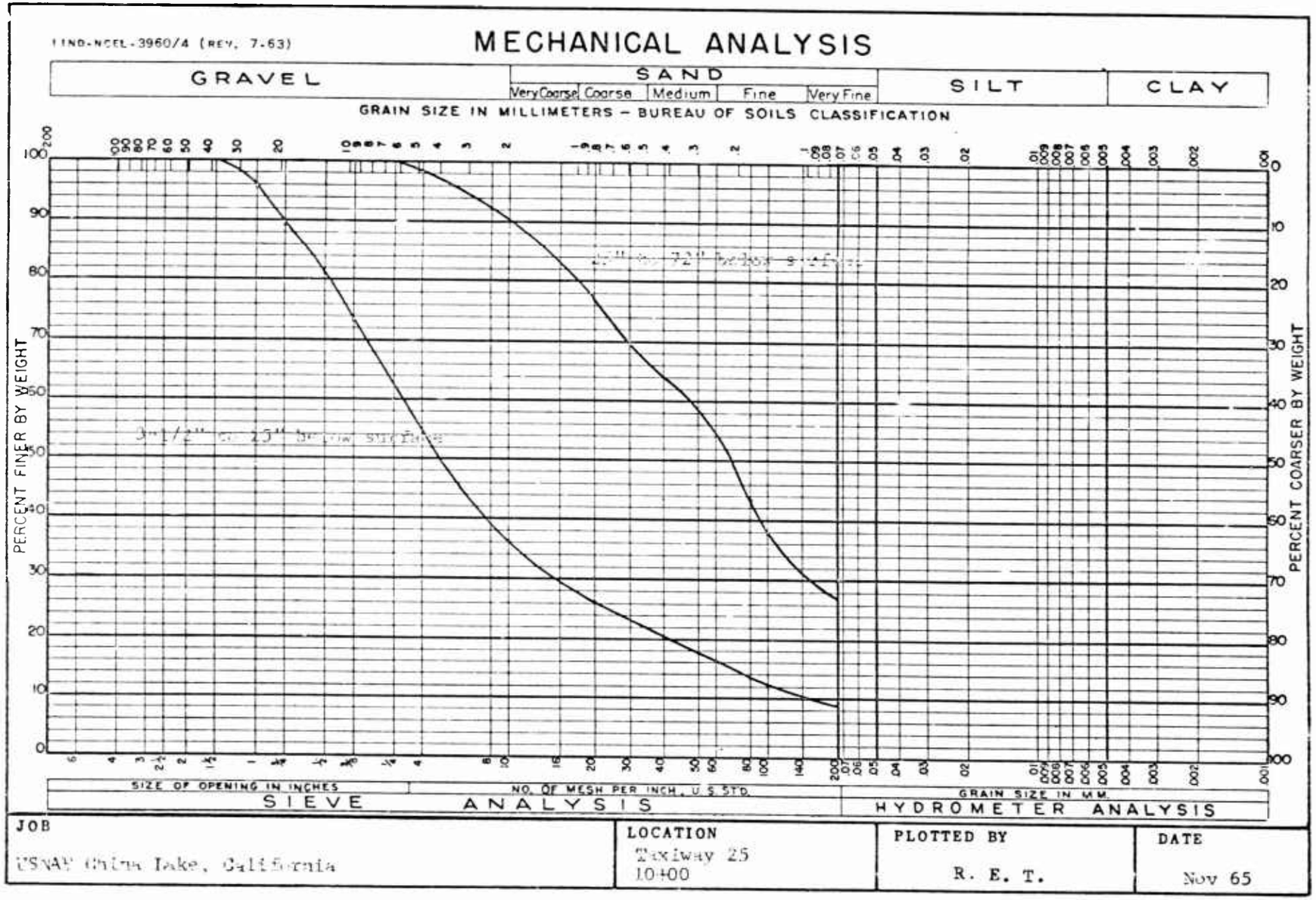
GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES — SIEVE ANALYSIS	NO. OF MESH PER INCH, U.S. STD. — SIEVE ANALYSIS	GRAIN SIZE IN MM — HYDROMETER ANALYSIS

JOB	LOCATION	PLOTTED BY	DATE
USAF China Lake, California	Taxiway 21 21+00	L. J. W.	19 Nov 65

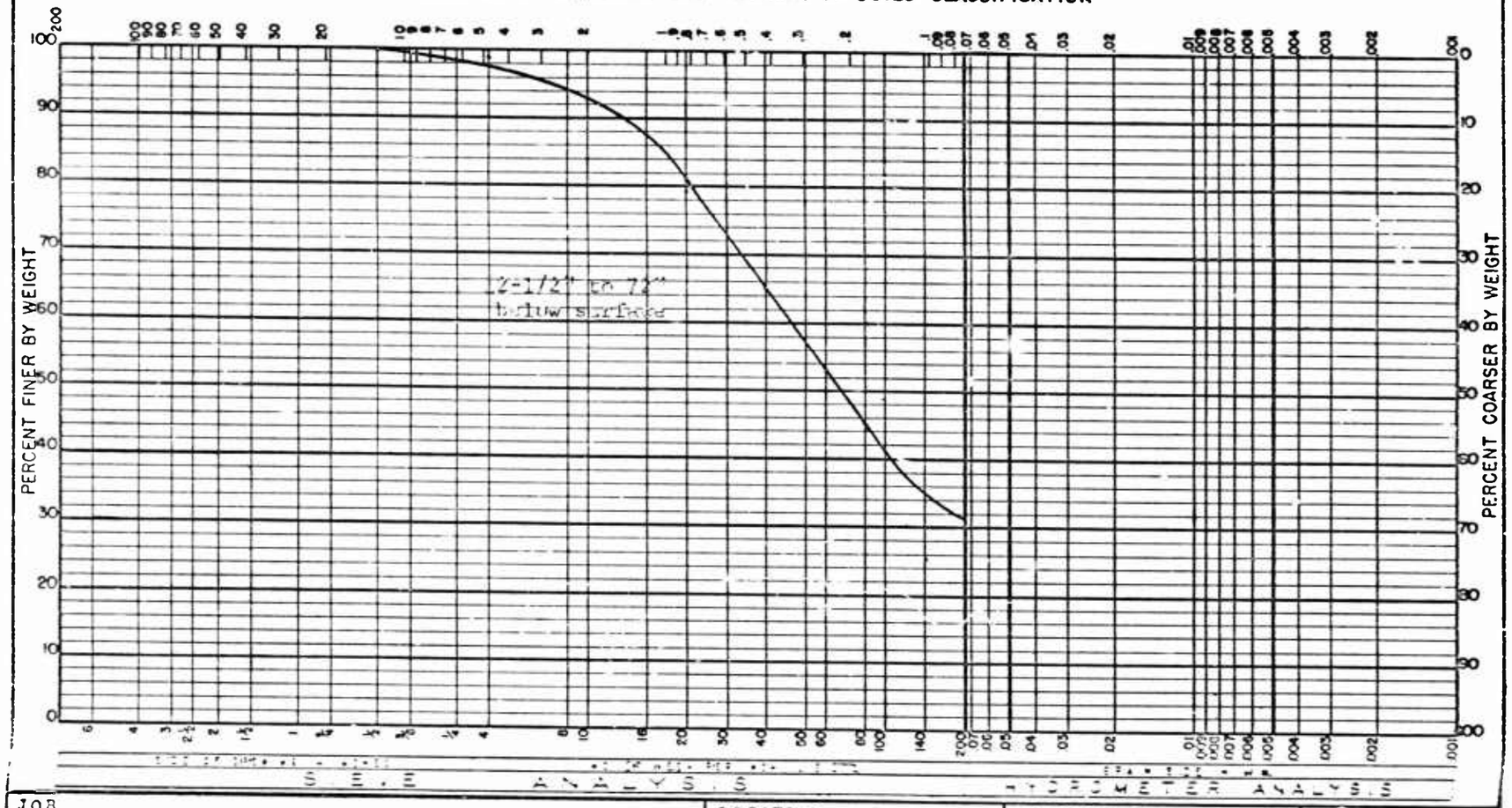

IND-NCEL-3960/4 (REV. 7-63)
MECHANICAL ANALYSIS
GRAVEL
SAND
Very Coarse
Coarse
Medium
Fine
Very Fine
SILT
CLAY
GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION
PERCENT FINER BY WEIGHT
PERCENT COARSER BY WEIGHT
SIZE OF OPENING IN INCHES
NO. OF MESH PER INCH, U.S. STD.
GRAIN SIZE IN M.M.
SIEVE ANALYSIS
HYDROMETER ANALYSIS
JOB
USNAF China Lake, California
LOCATION
Taxiway 25
10+00
PLOTTED BY
R. E. T.
DATE
Nov 65

FIND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



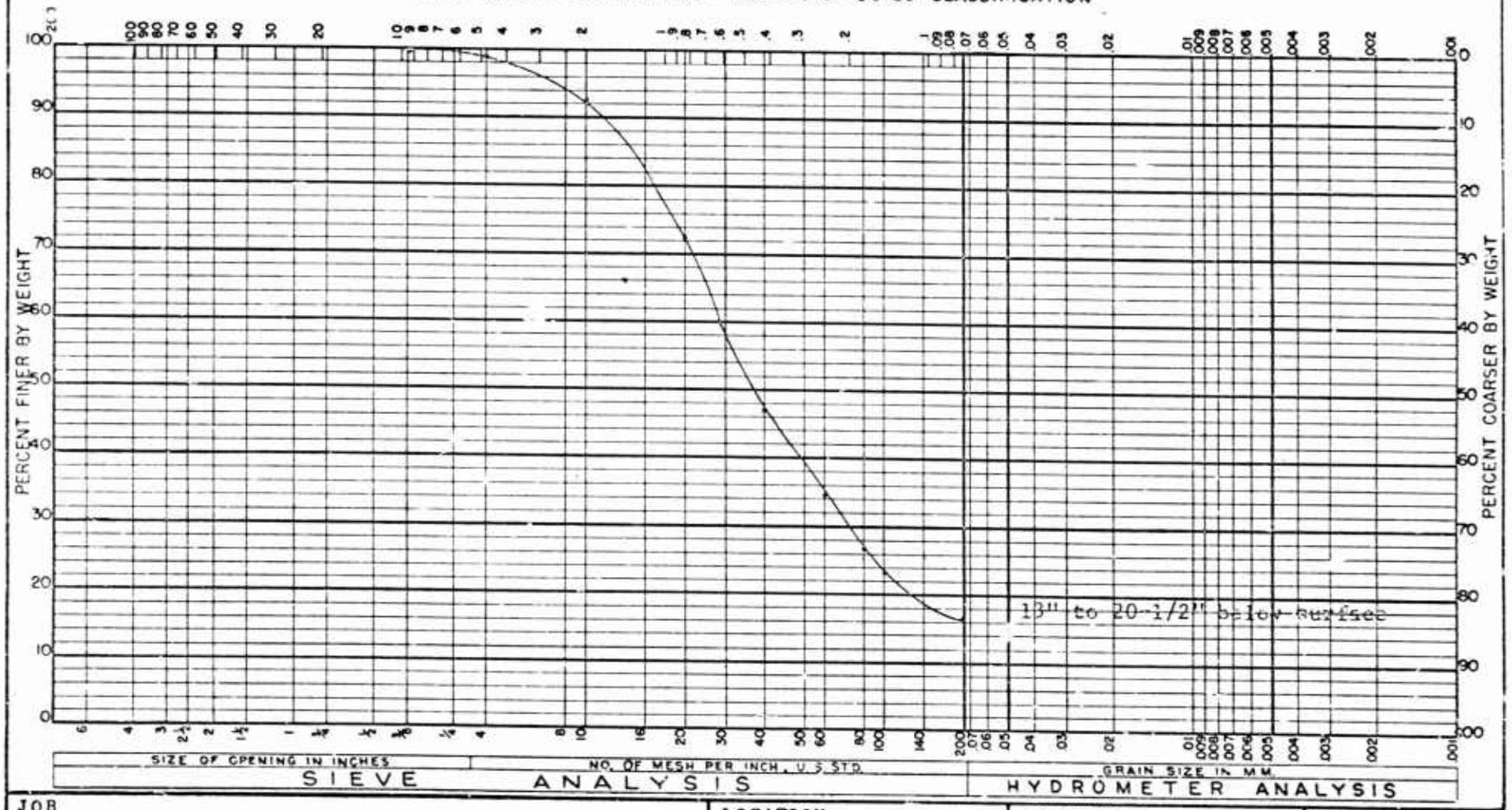
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Connecting Taxiway A 2+00	R. E. [illegible]	Nov 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



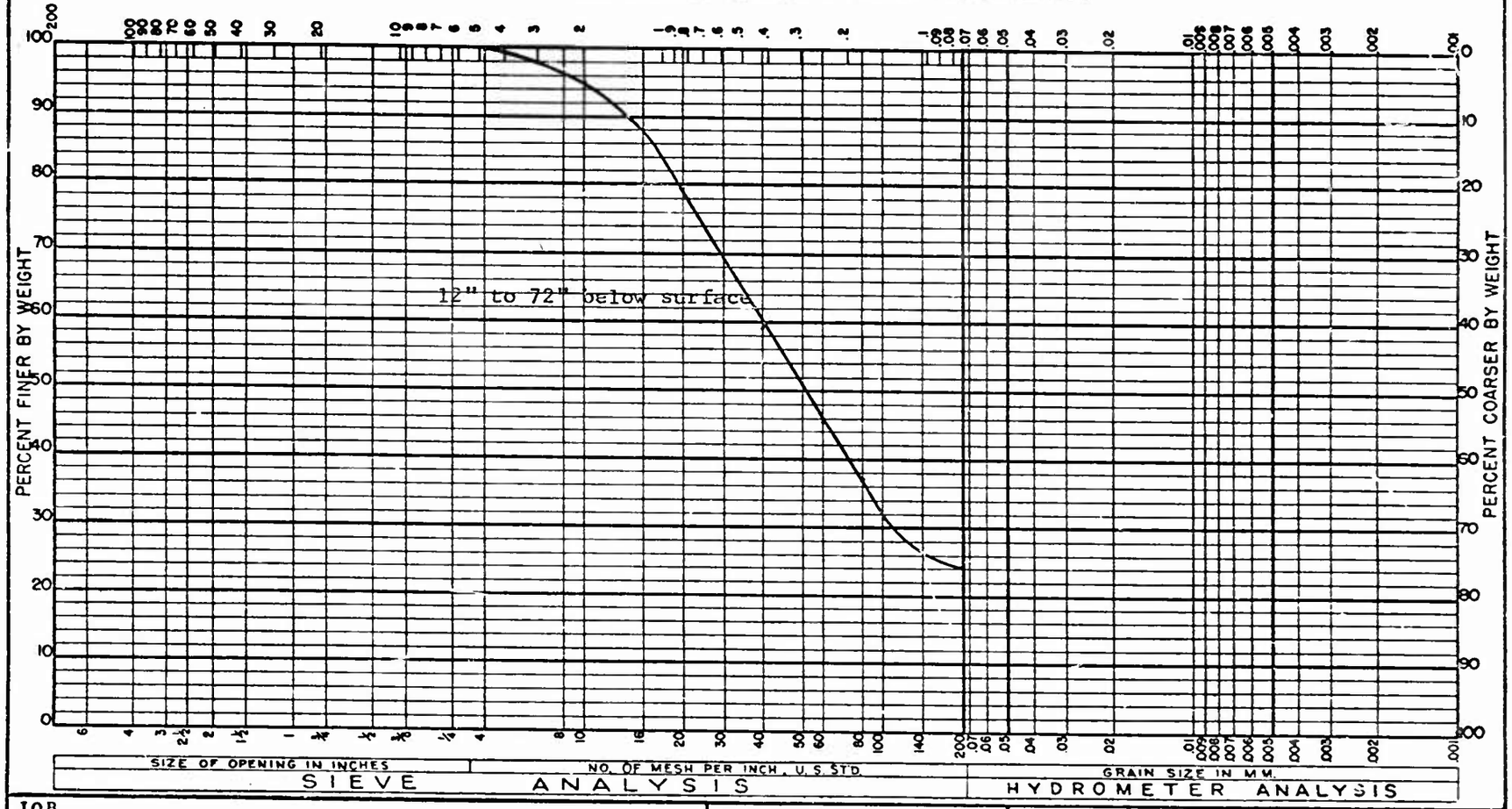
JOB	LOCATION	PLOTTED BY	DATE
NAF China Lake, California	Connecting Taxiway B 2+00	L. J. W.	15 Nov 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



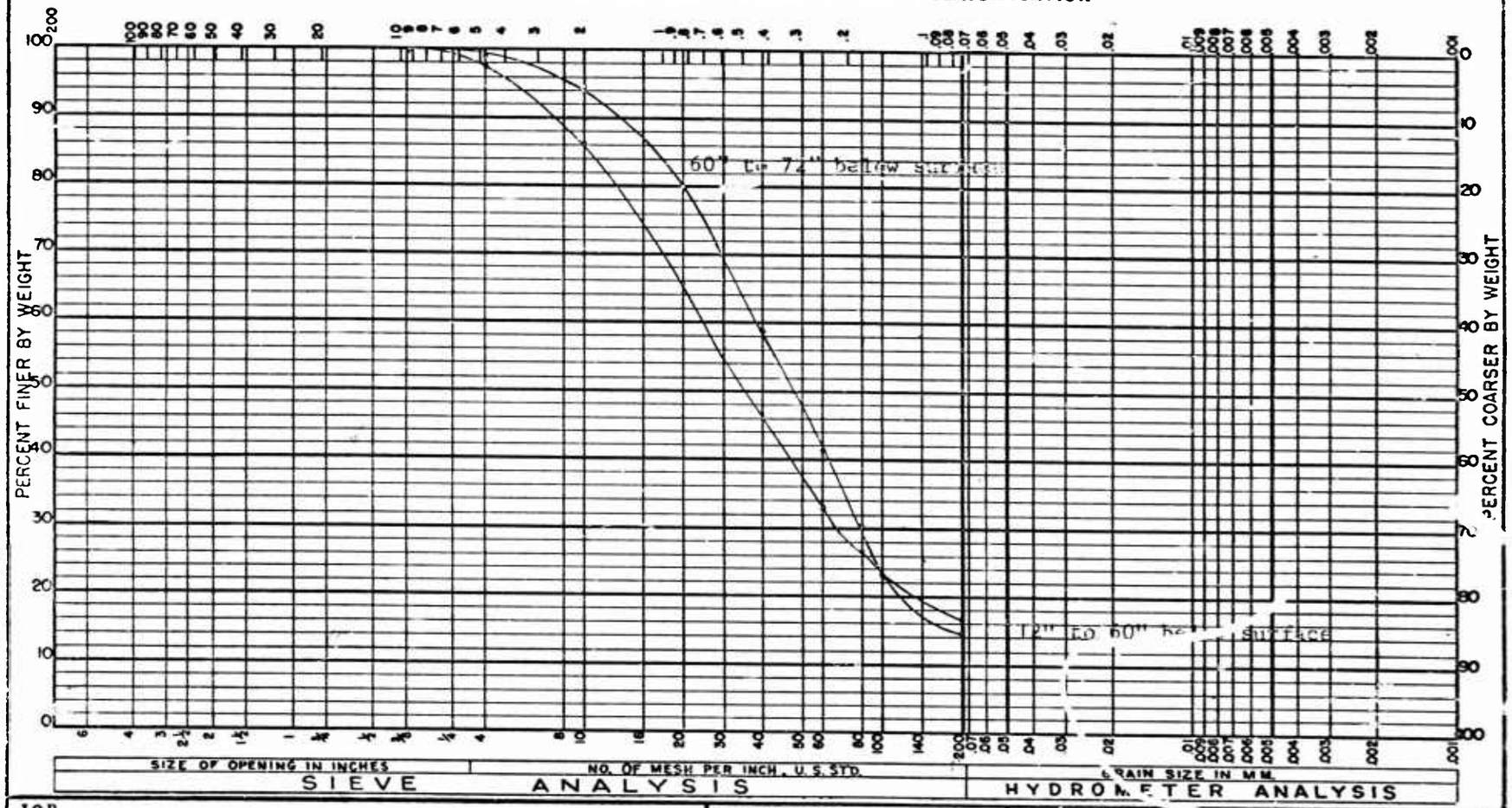
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Connecting Taxiway C 2+00	R. E. T.	Nov 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



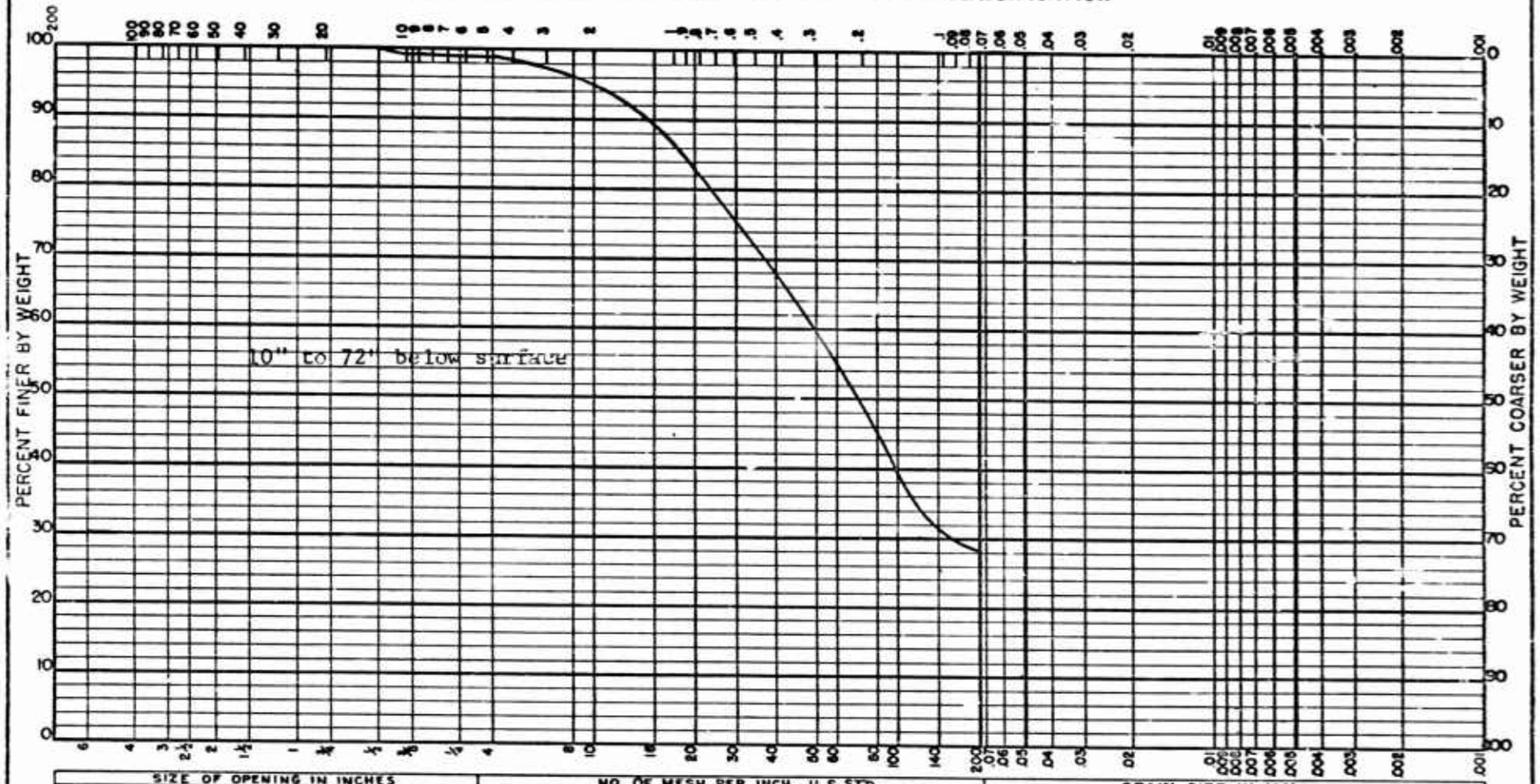
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Connecting Taxiway D 4+00	L. J. W.	17 Nov 65

IND-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



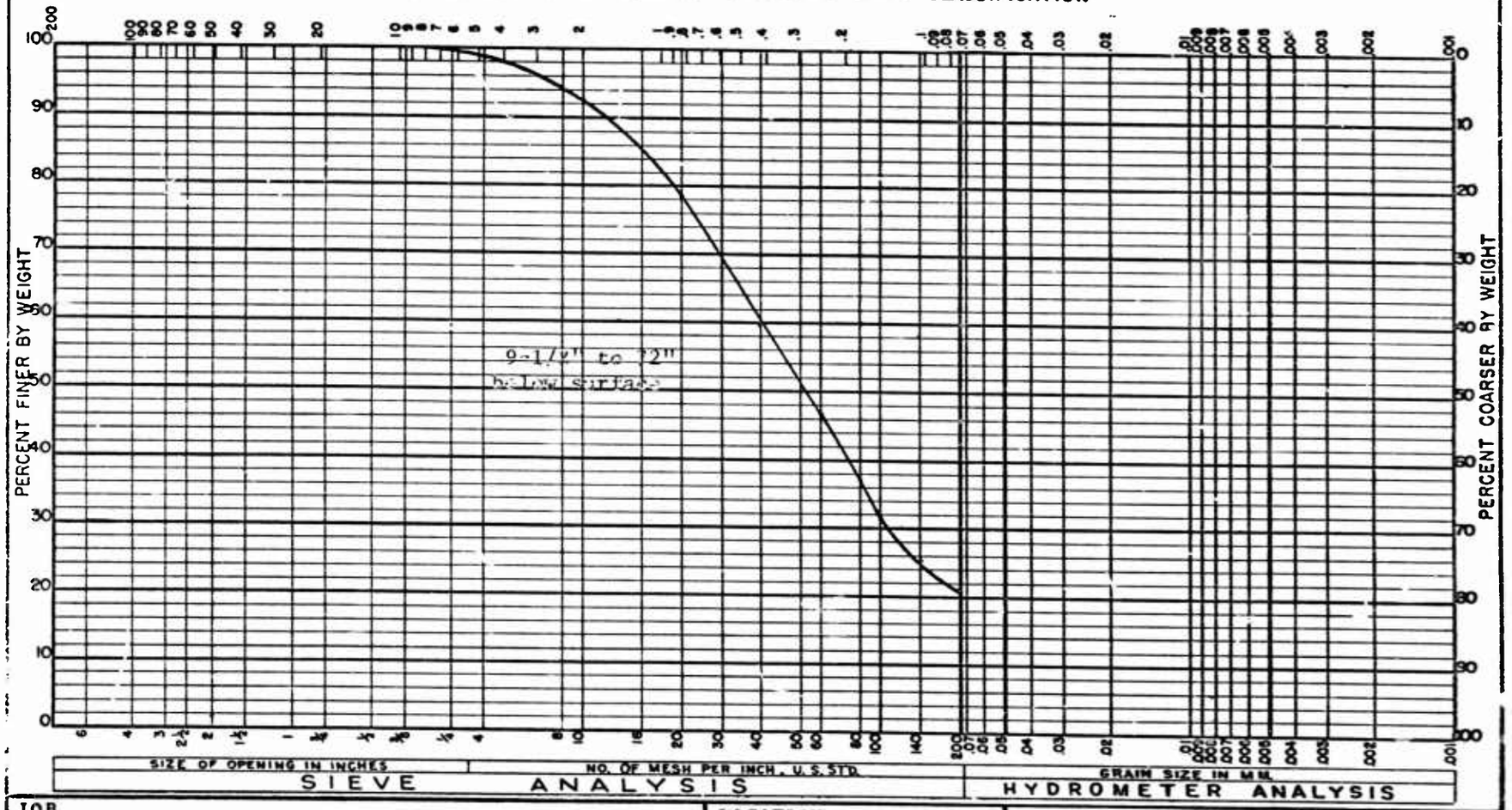
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Connecting Taxiway E 1+50	R. E. T.	Nov 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

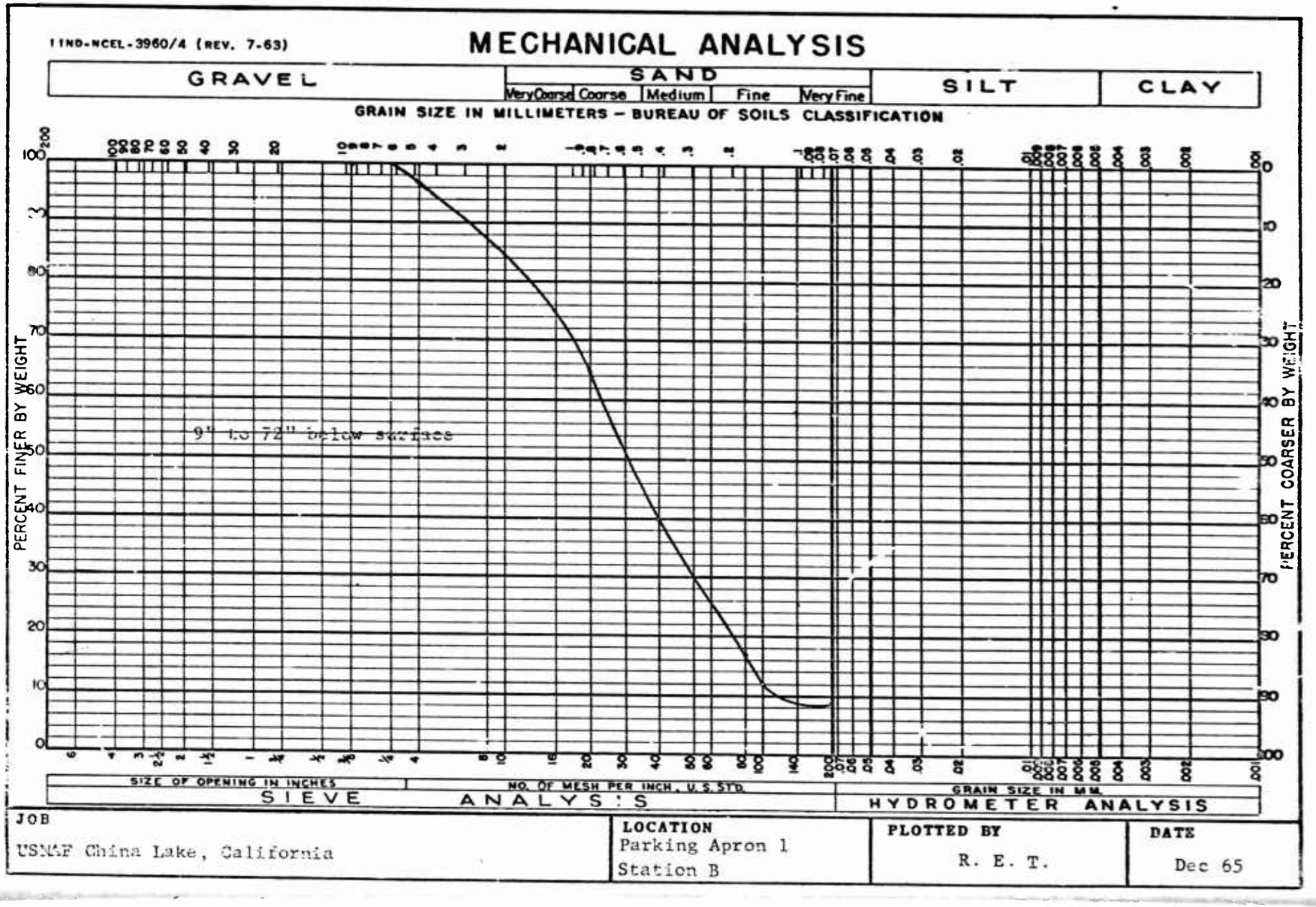
MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Parking Apron 1 Station A	R. E. T.	Dec 65

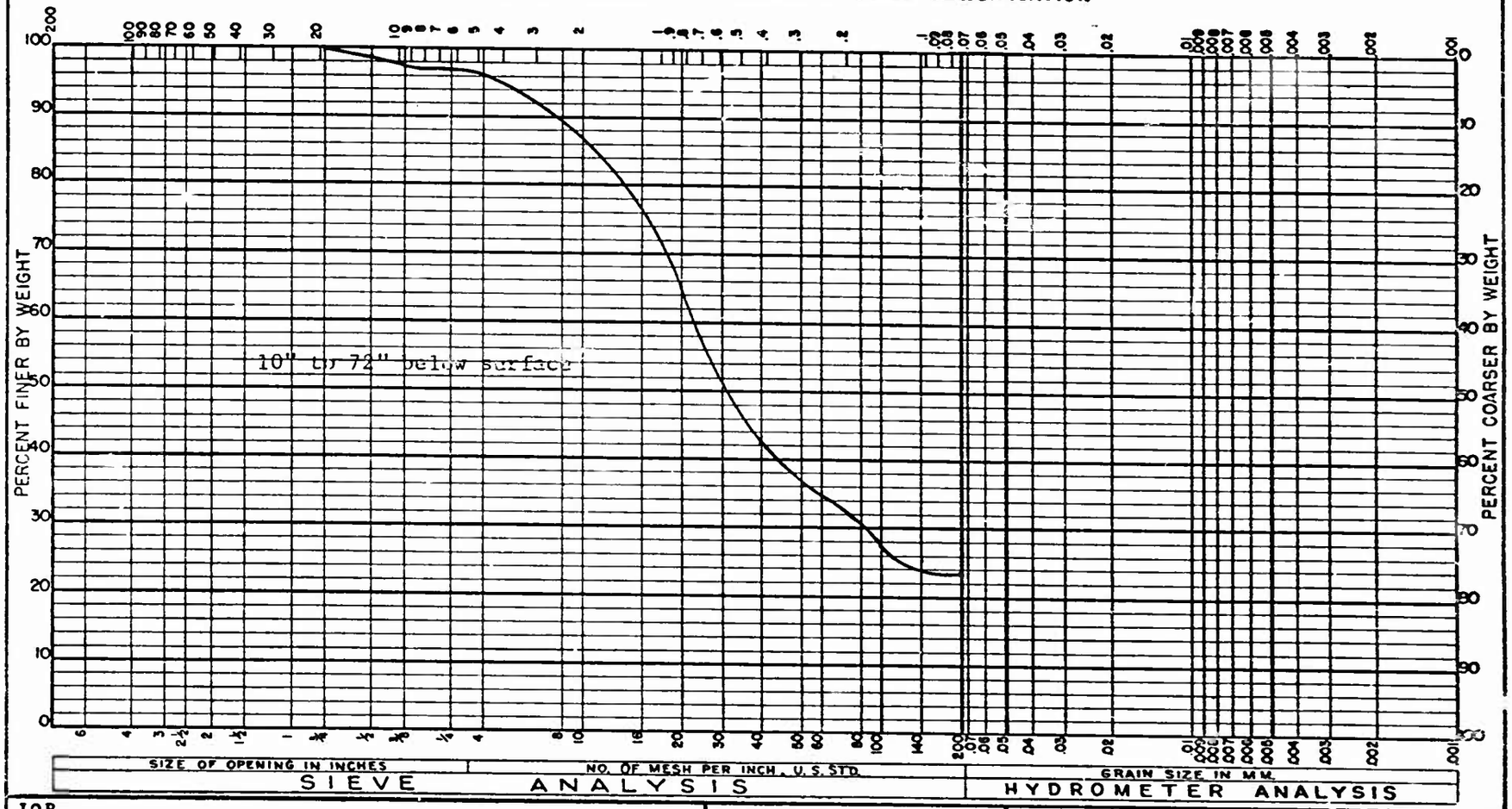

1 IND-NCEL-3960/4 (REV. 7-63)
MECHANICAL ANALYSIS
GRAVEL
SAND
Very Coarse
Coarse
Medium
Fine
Very Fine
SILT
CLAY
GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION
PERCENT FINER BY WEIGHT
PERCENT COARSER BY WEIGHT
9" to 72" below surface
SIZE OF OPENING IN INCHES
NO. OF MESH PER INCH, U.S. STD.
GRAIN SIZE IN MM.
SIEVE ANALYSIS
HYDROMETER ANALYSIS
JOB
USMF China Lake, California
LOCATION
Parking Apron 1
Station B
PLOTTED BY
R. E. T.
DATE
Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



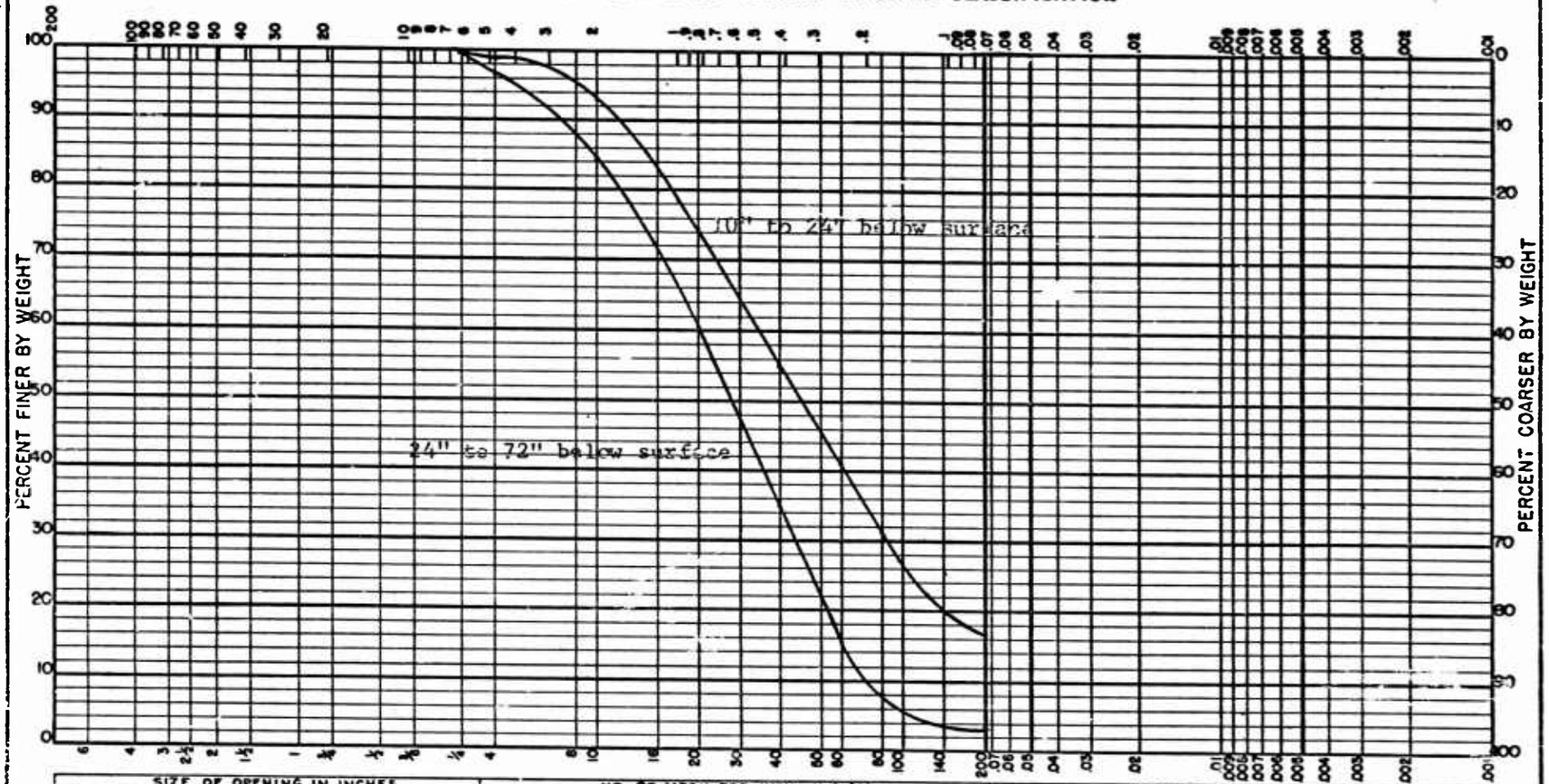
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Parking Apron 1 Station C	R. E. T.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES — SIEVE ANALYSIS	NO. OF MESH PER INCH, U.S. STD. — SIEVE ANALYSIS	GRAIN SIZE IN MM. — HYDROMETER ANALYSIS

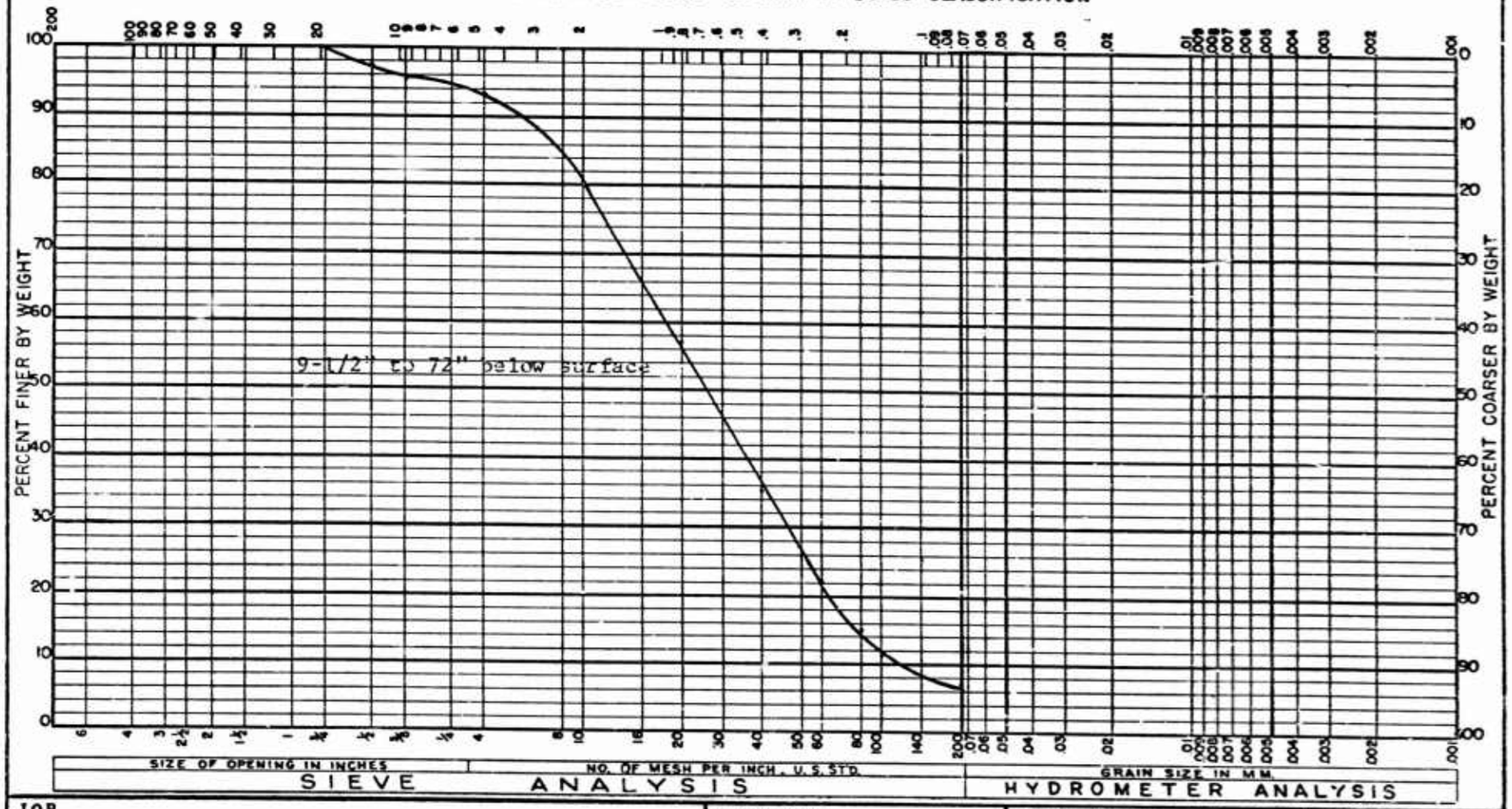
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Parking Apron 1 Station D	R. E. T.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Parking Apron 1 Station E	R. E. T.	Dec 65

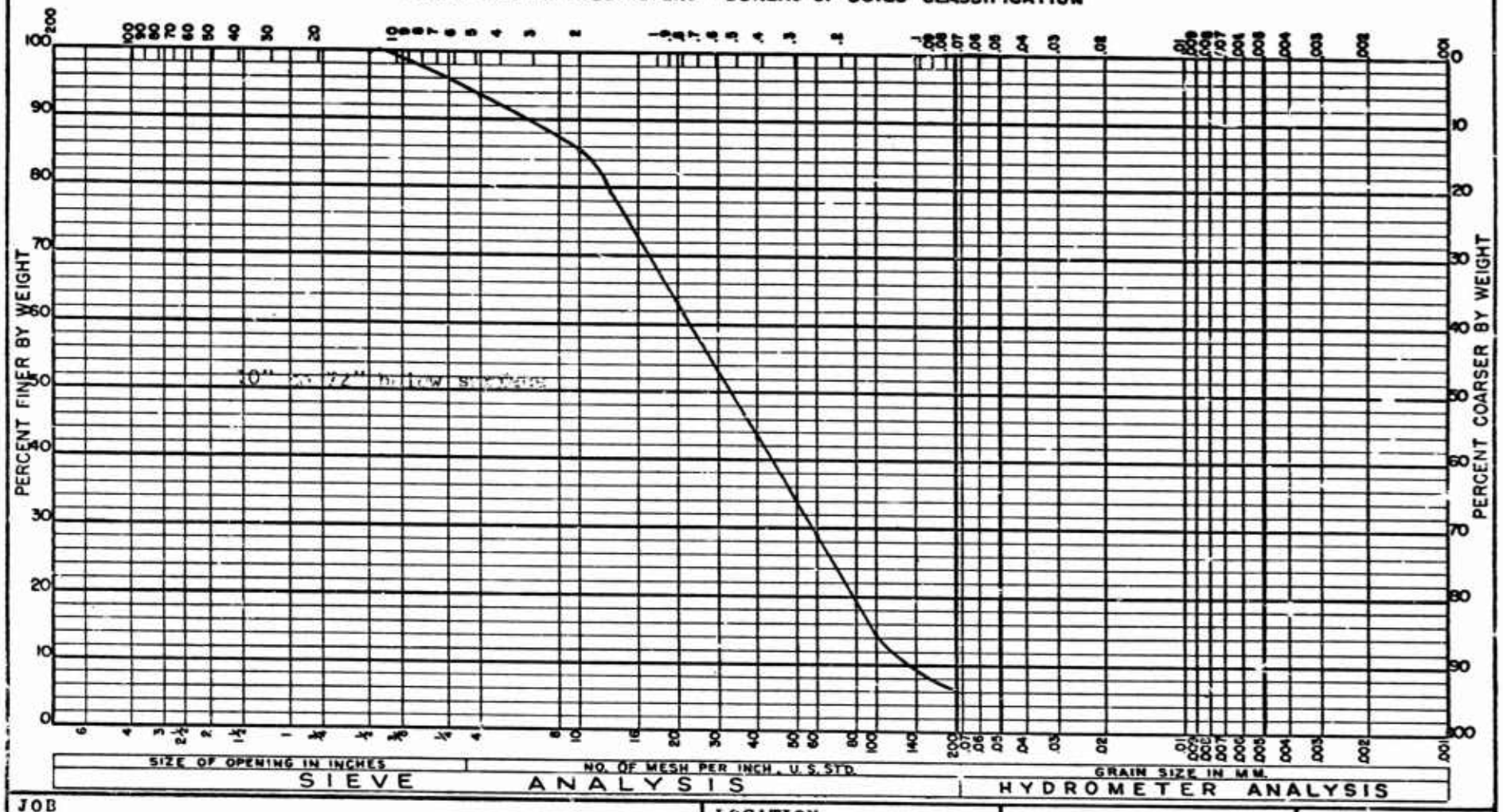
245

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



SIZE OF OPENING IN INCHES	NO. OF MESH PER INCH, U.S. STD.	GRAIN SIZE IN M.M.
SIEVE ANALYSIS		HYDROMETER ANALYSIS

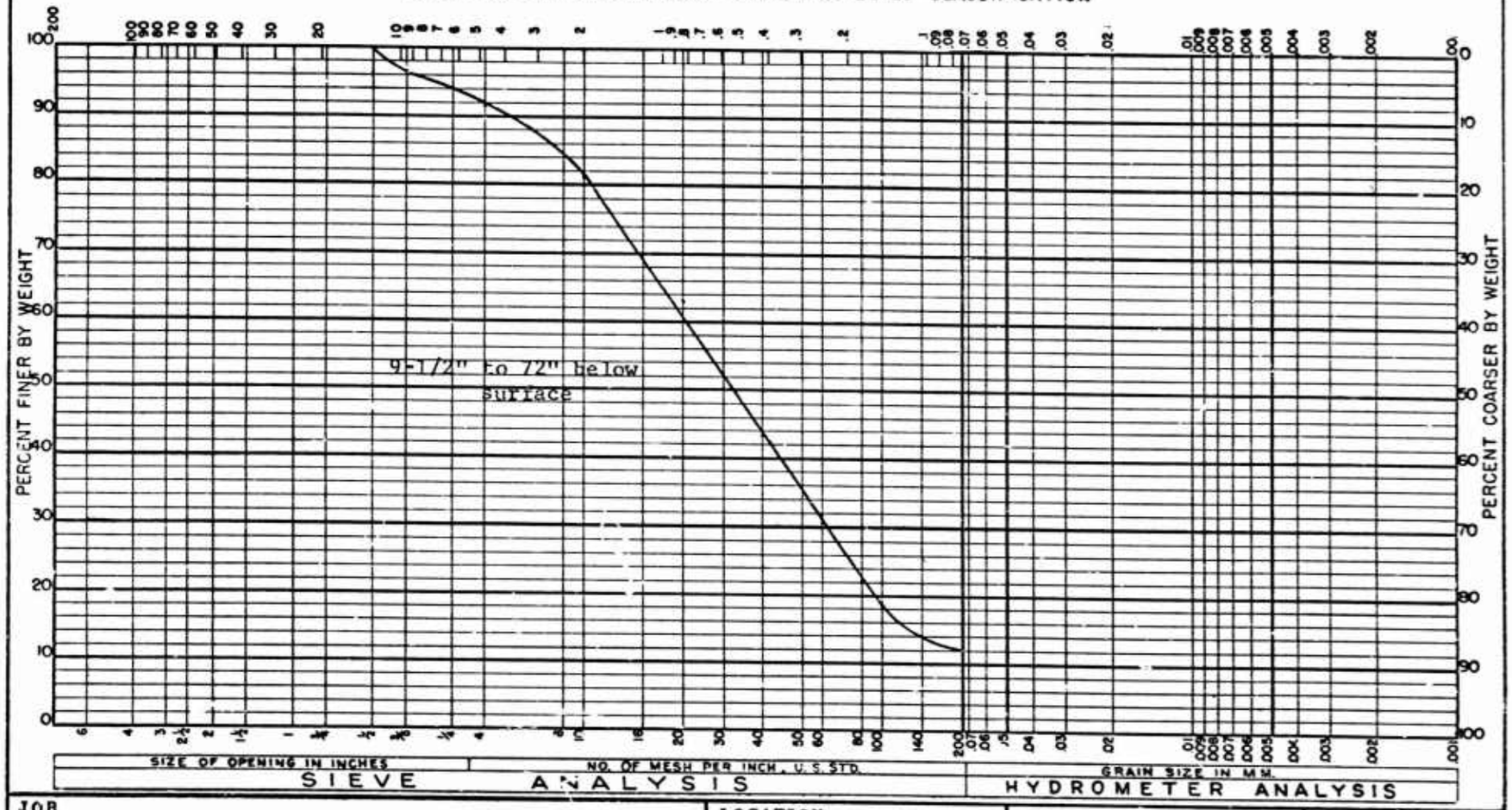
JOB	LOCATION	PLOTTED BY	DATE
USNAS China Lake, California	Parking Apron 1 Station F	R. E. S.	Dec 65

NAVFAC-NCEL-3960/4 (REV. 7-63)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



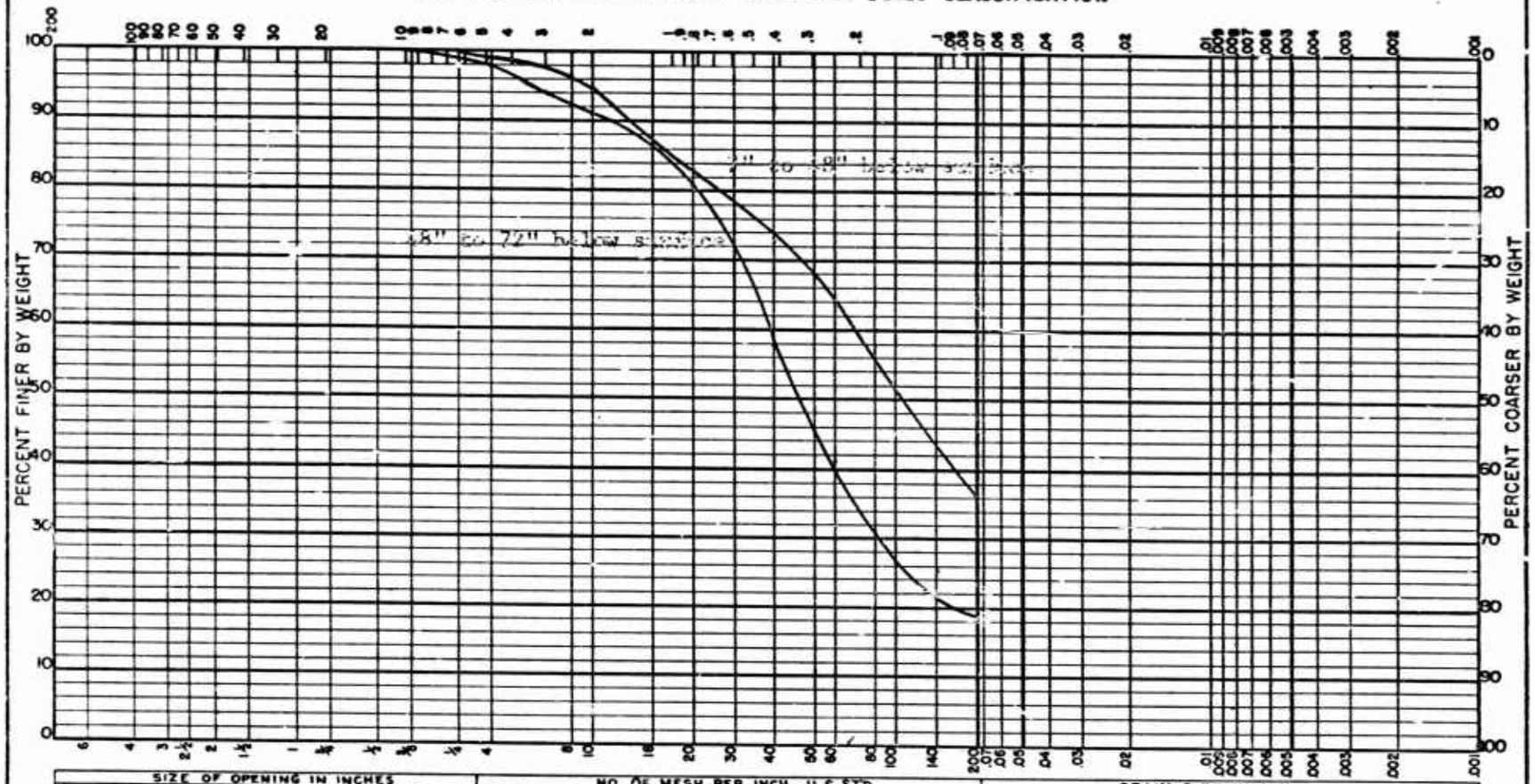
JOB	LOCATION	PLOTTED BY	DATE
USNAF China Lake, California	Parking Apron 2 Station A	R. E. T.	Nov 65

IND.-NCEL-3960/4 (REV. 7-53)

MECHANICAL ANALYSIS

GRAVEL	SAND					SILT	CLAY
	Very Coarse	Coarse	Medium	Fine	Very Fine		

GRAIN SIZE IN MILLIMETERS – BUREAU OF SOILS CLASSIFICATION



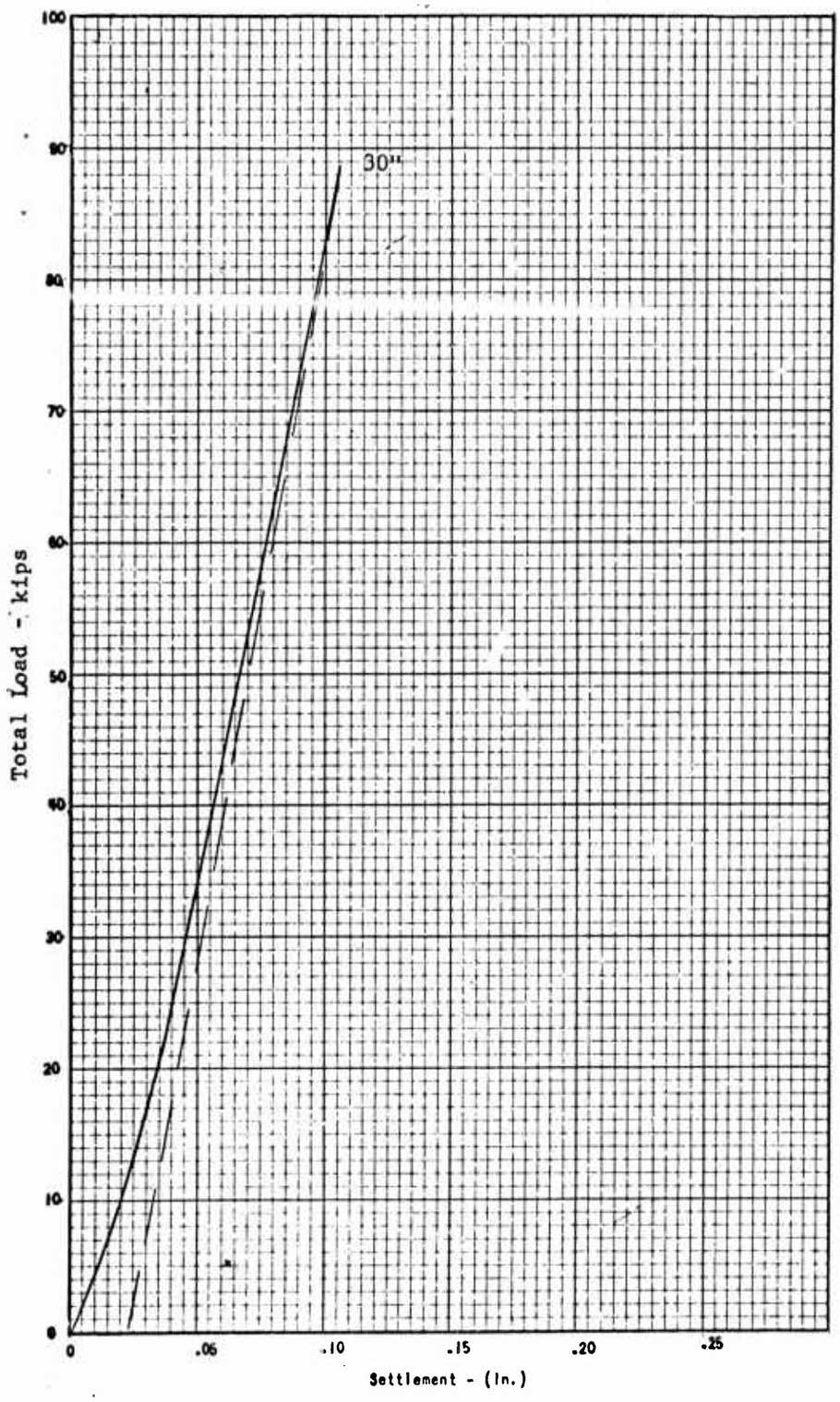
JOB	LOCATION	PLOTTED BY	DATE
NSAS China Lake, California	Parking Apron 3 Station A	R. E. T.	Nov 65

Appendix G

SUBSURFACE PLATE LOAD TEST RESULTS

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

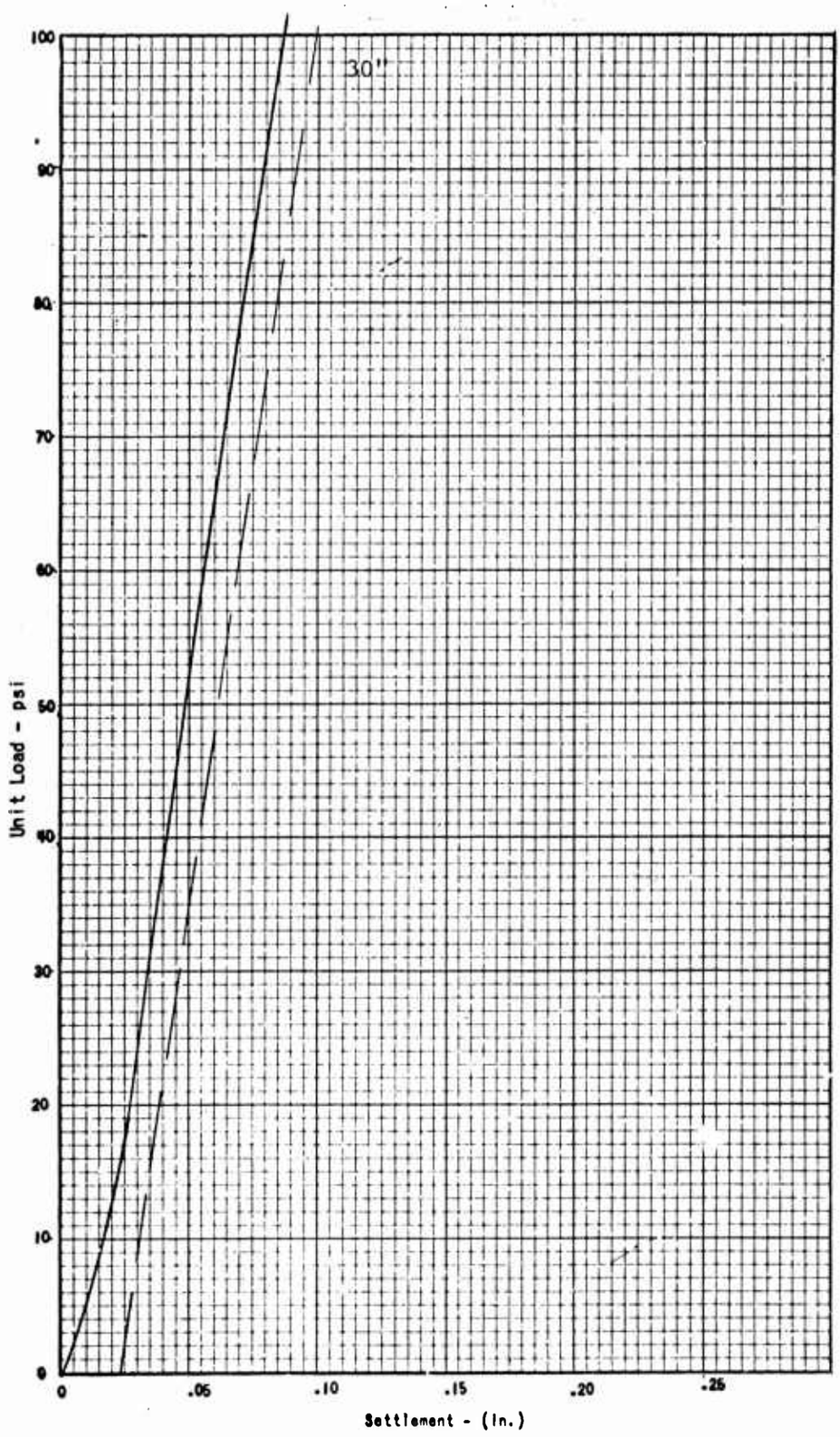
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	26+00



3" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	26+00

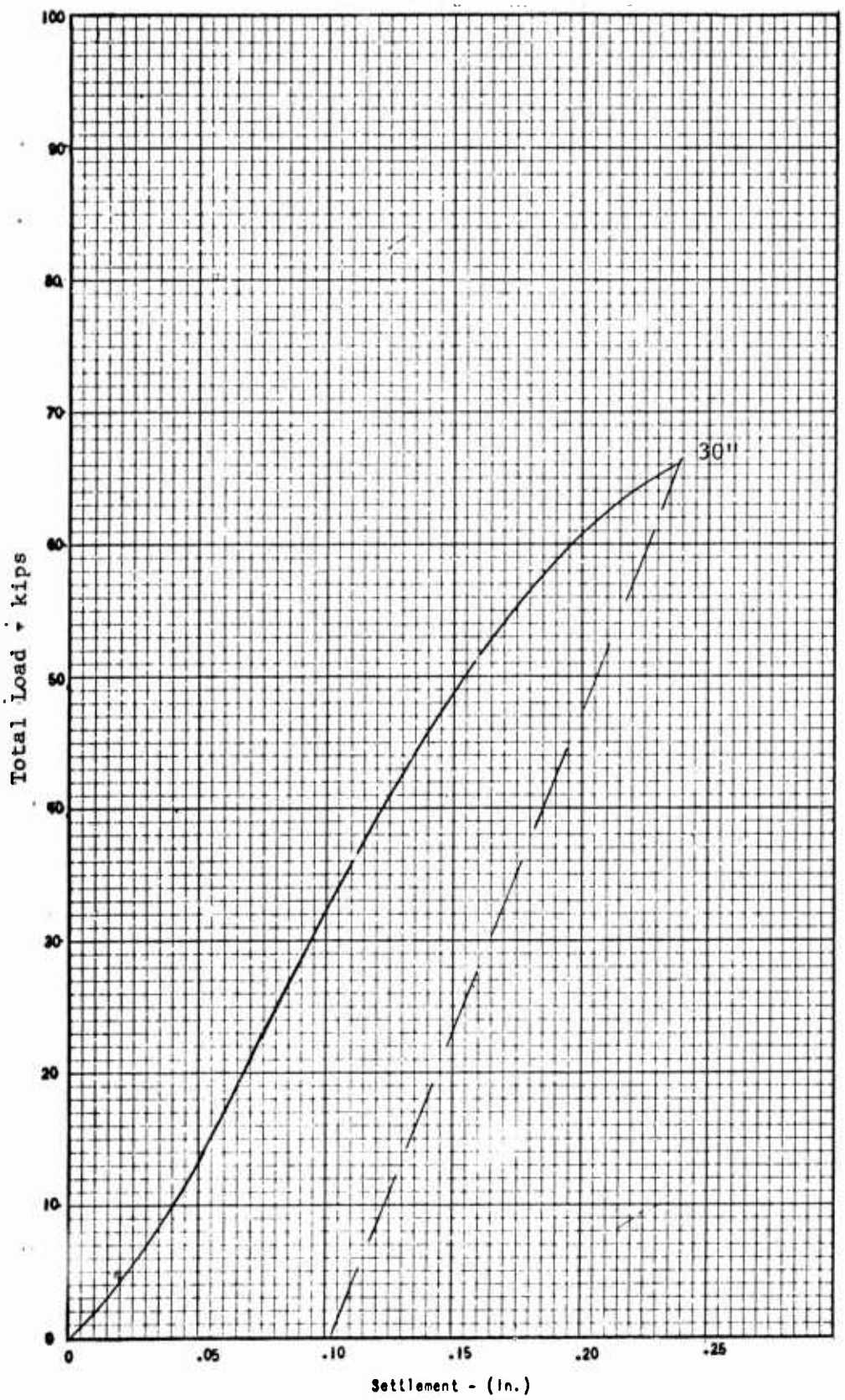


3" below top of asphaltic concrete

K = 1050 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	26+00

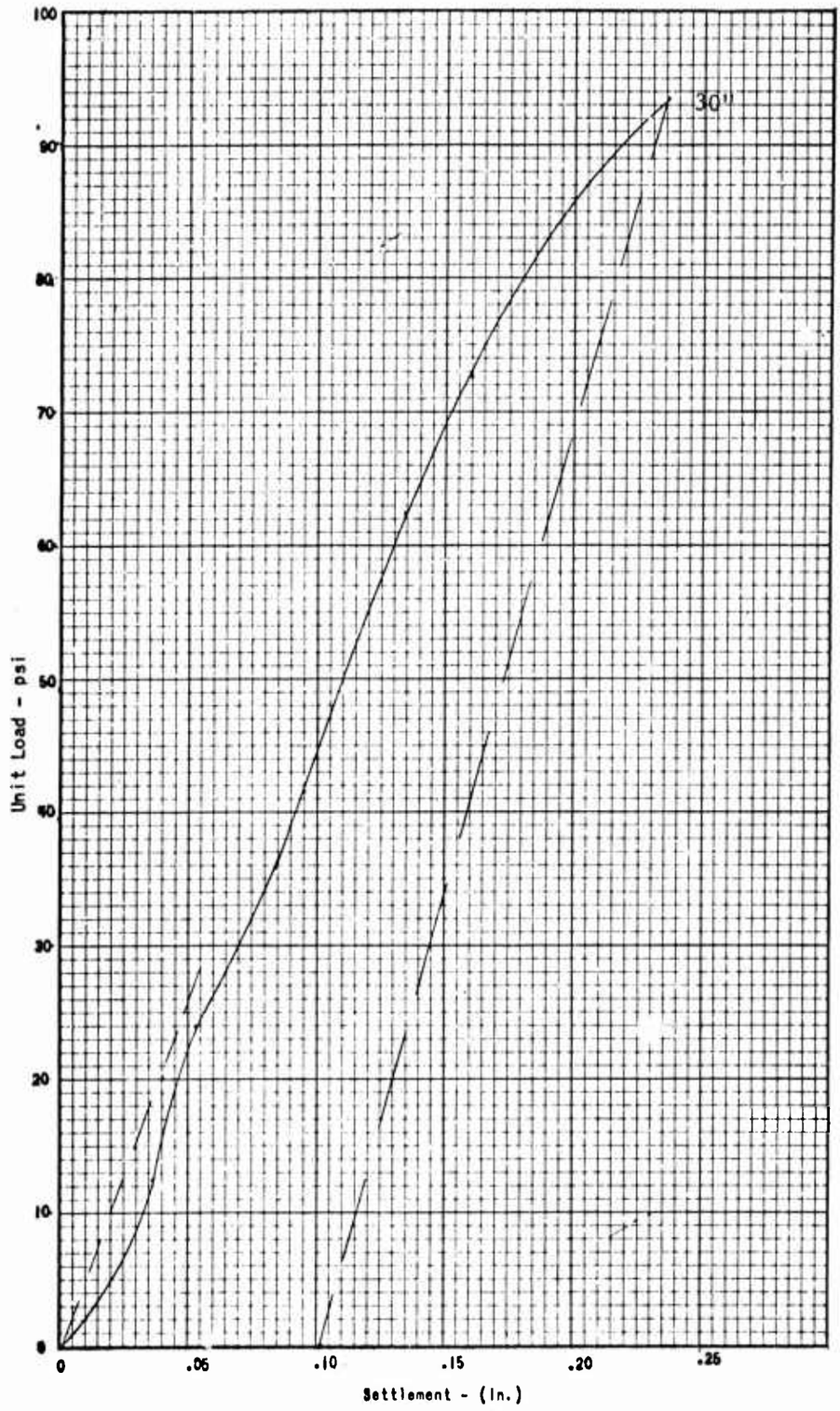


12" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	26+00

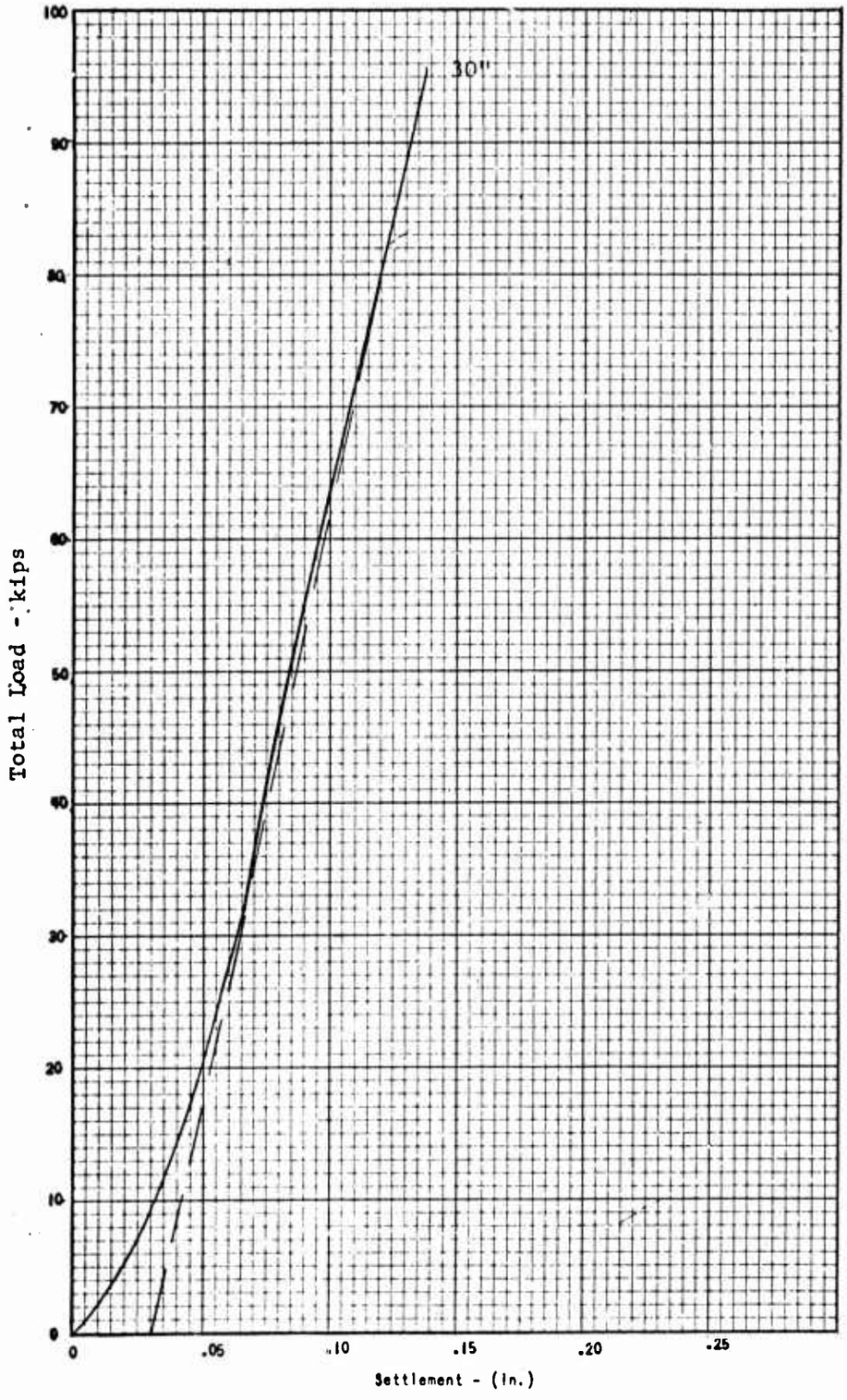


12" below top of asphaltic concrete

K = 516 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

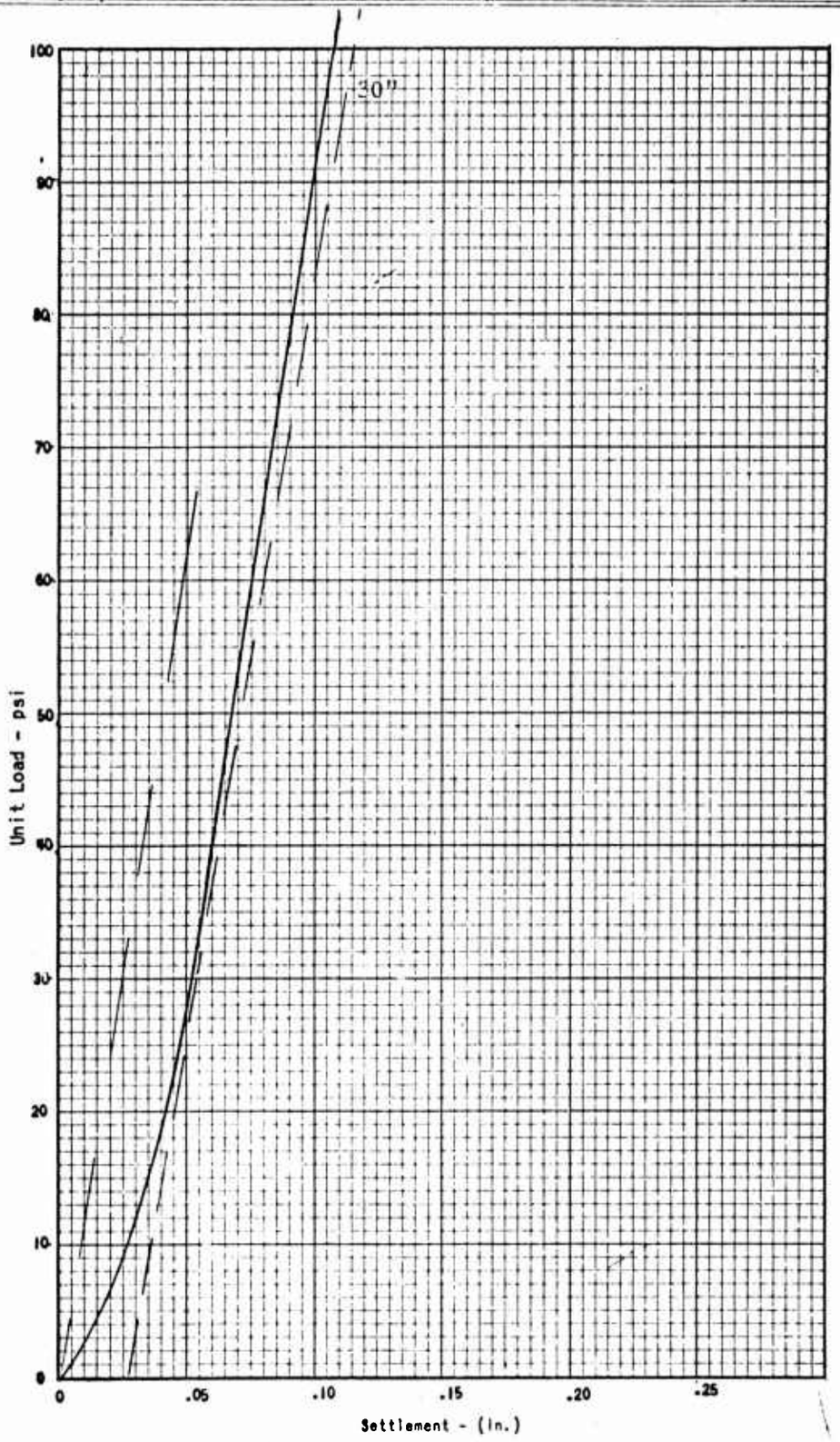
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	46+00



3" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	46+00

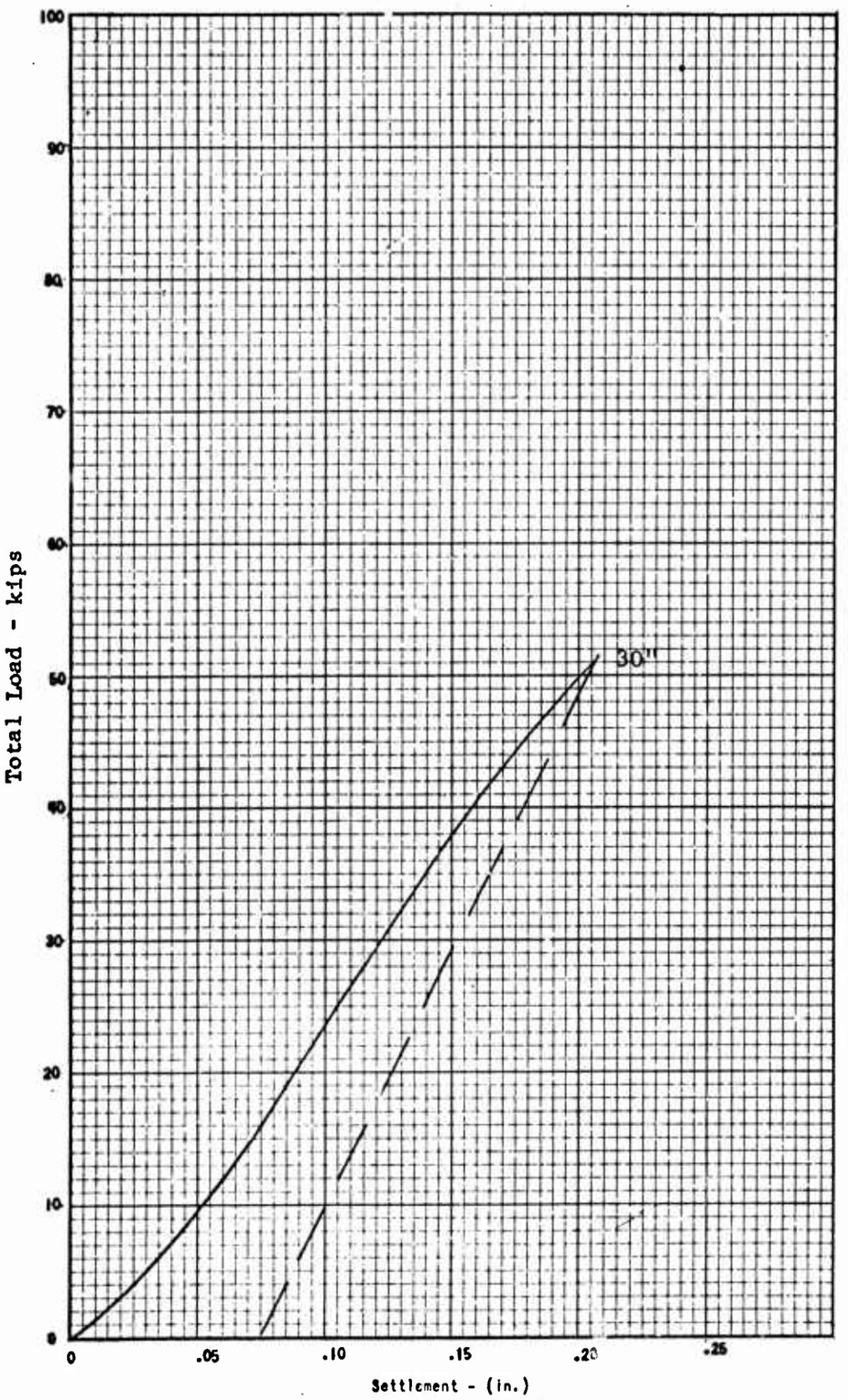


3" below top of asphaltic concrete

K = 1240 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	46+00

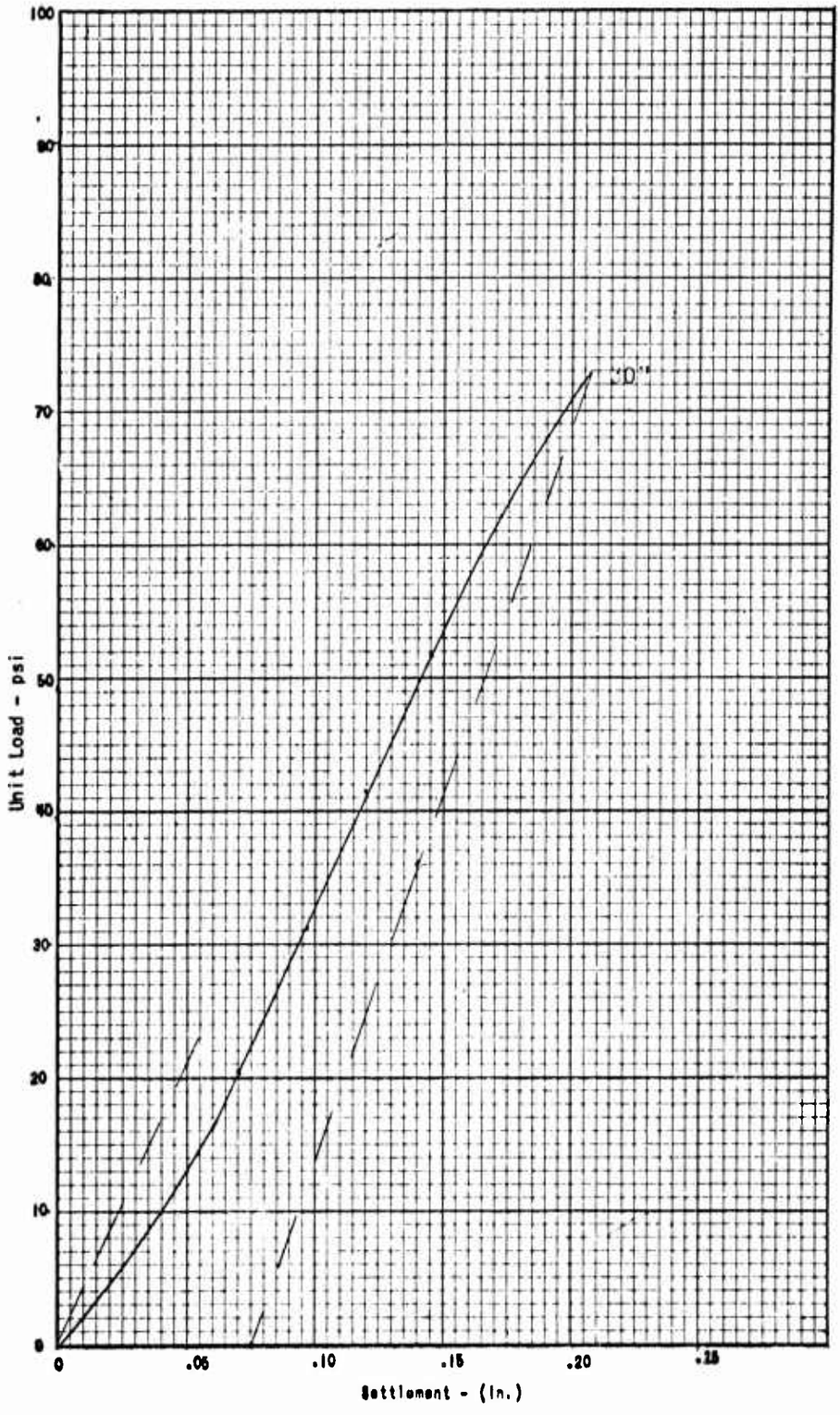


12" below top of asphaltic concrete

1IND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	46+00

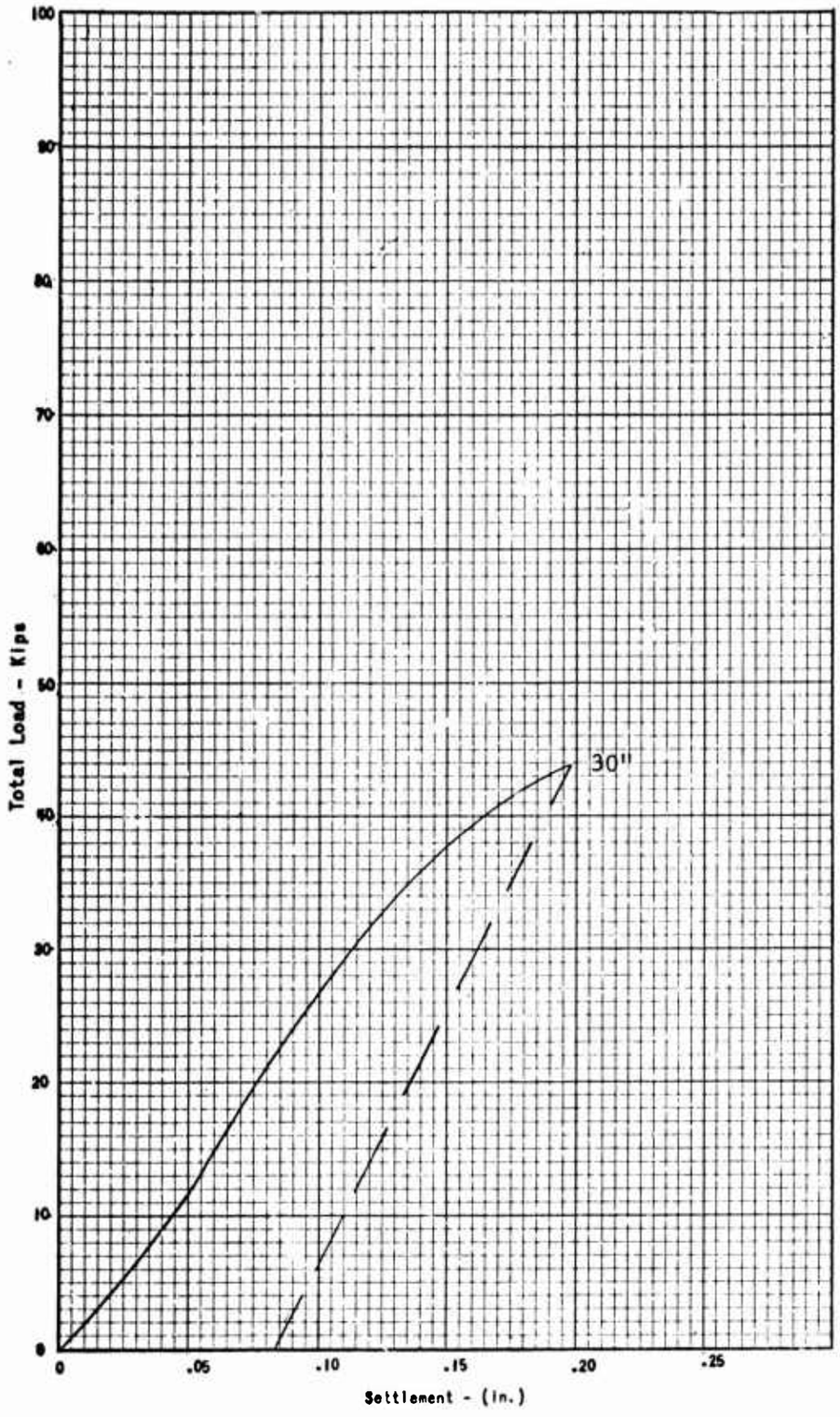


12" below top of asphaltic concrete

K = 420 pci

IND NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	46+00

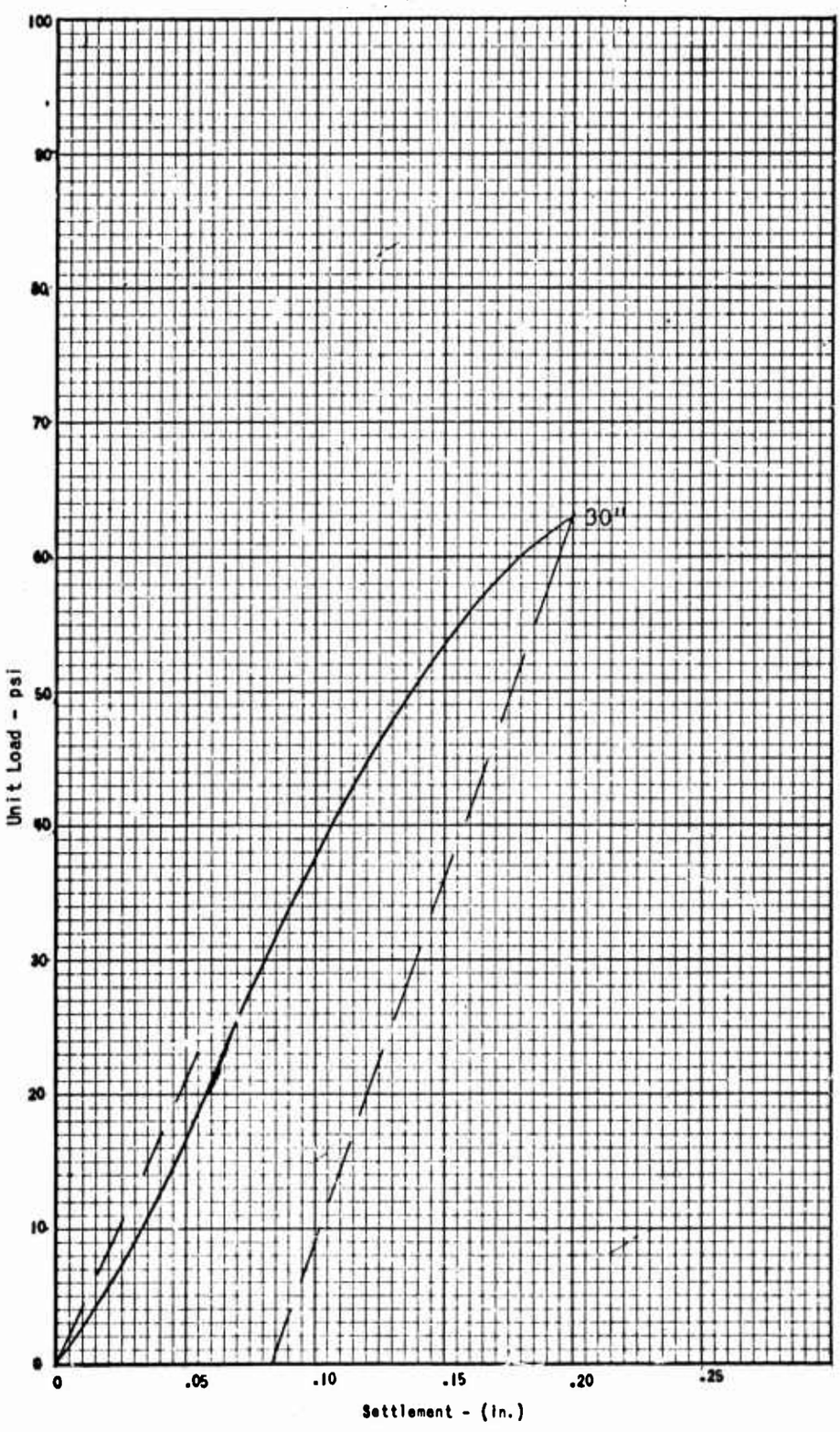


22" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	46+00

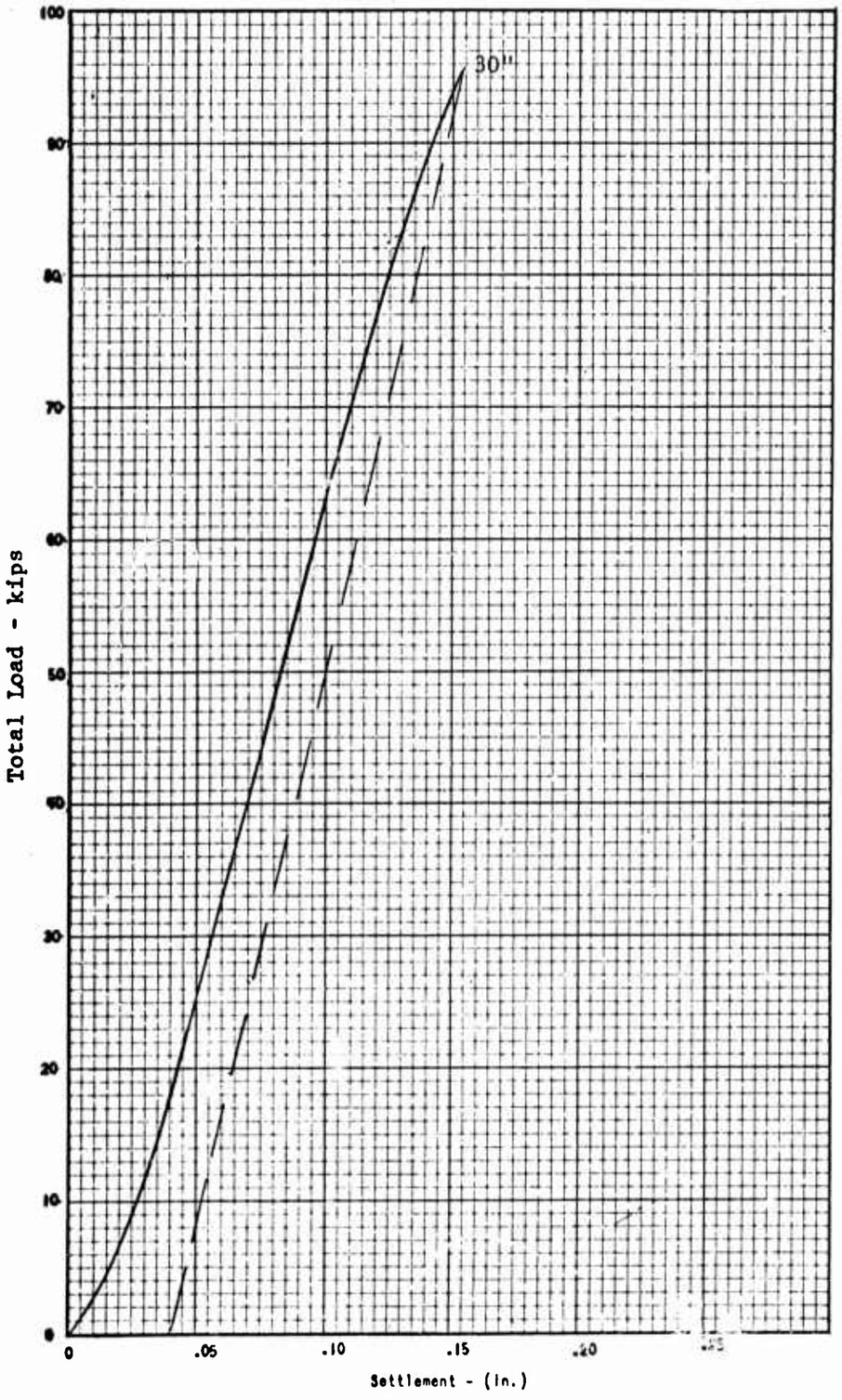


22" below top of asphaltic concrete

K = 420 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

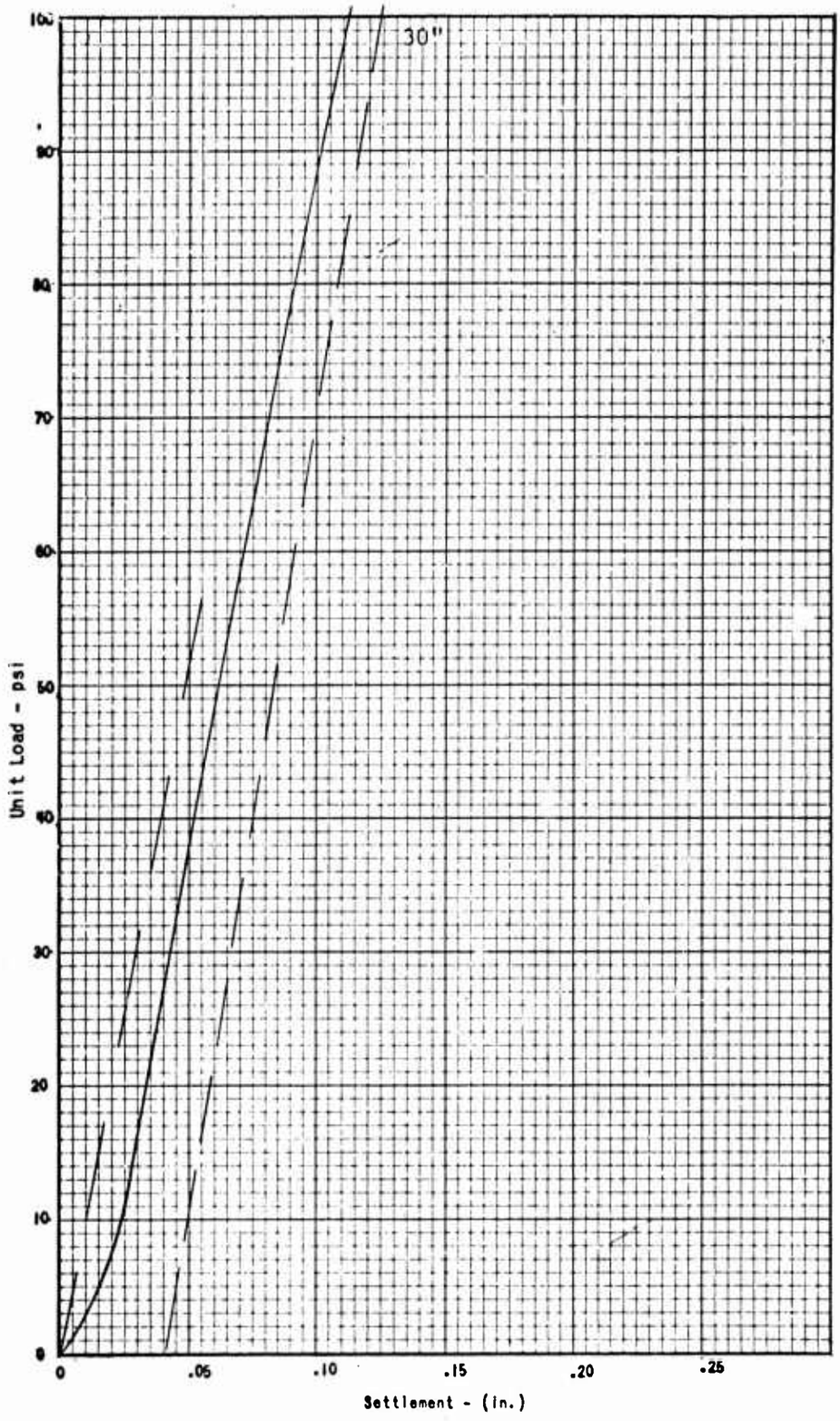
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	66+00



4-1/2" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	66+00

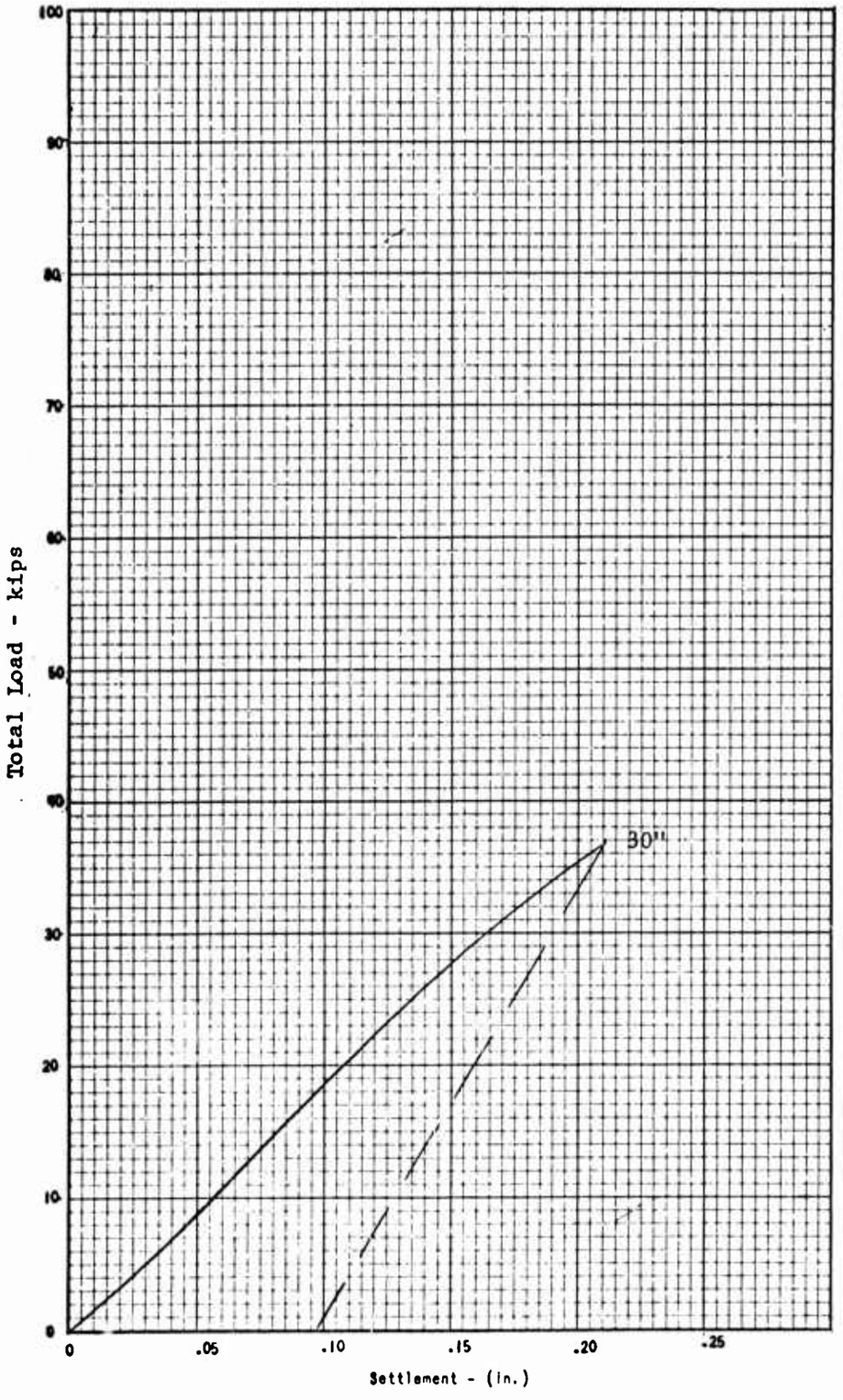


4-1/2" below top of asphaltic concrete

K = 1030 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	66+00

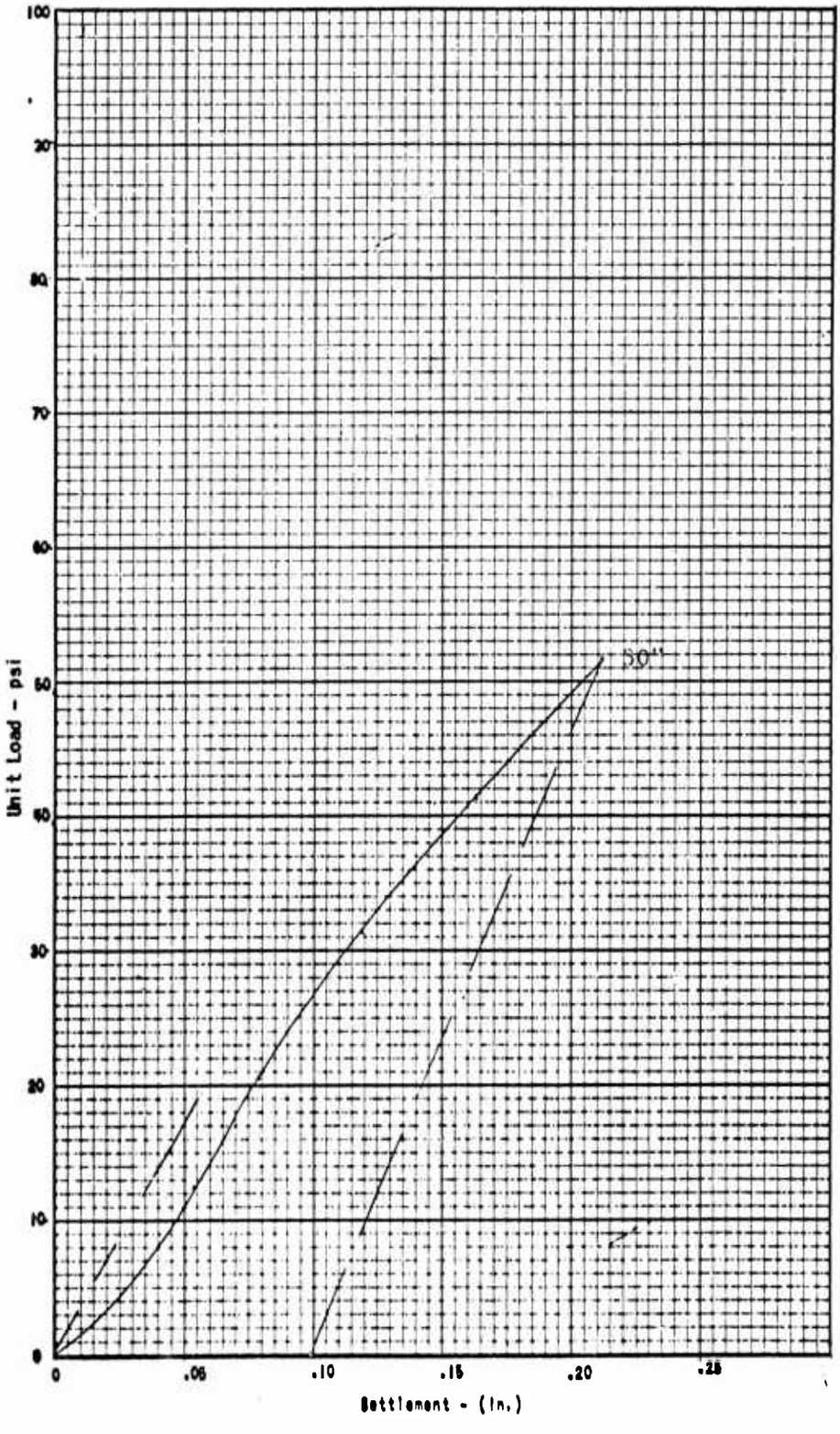


13" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	66+00

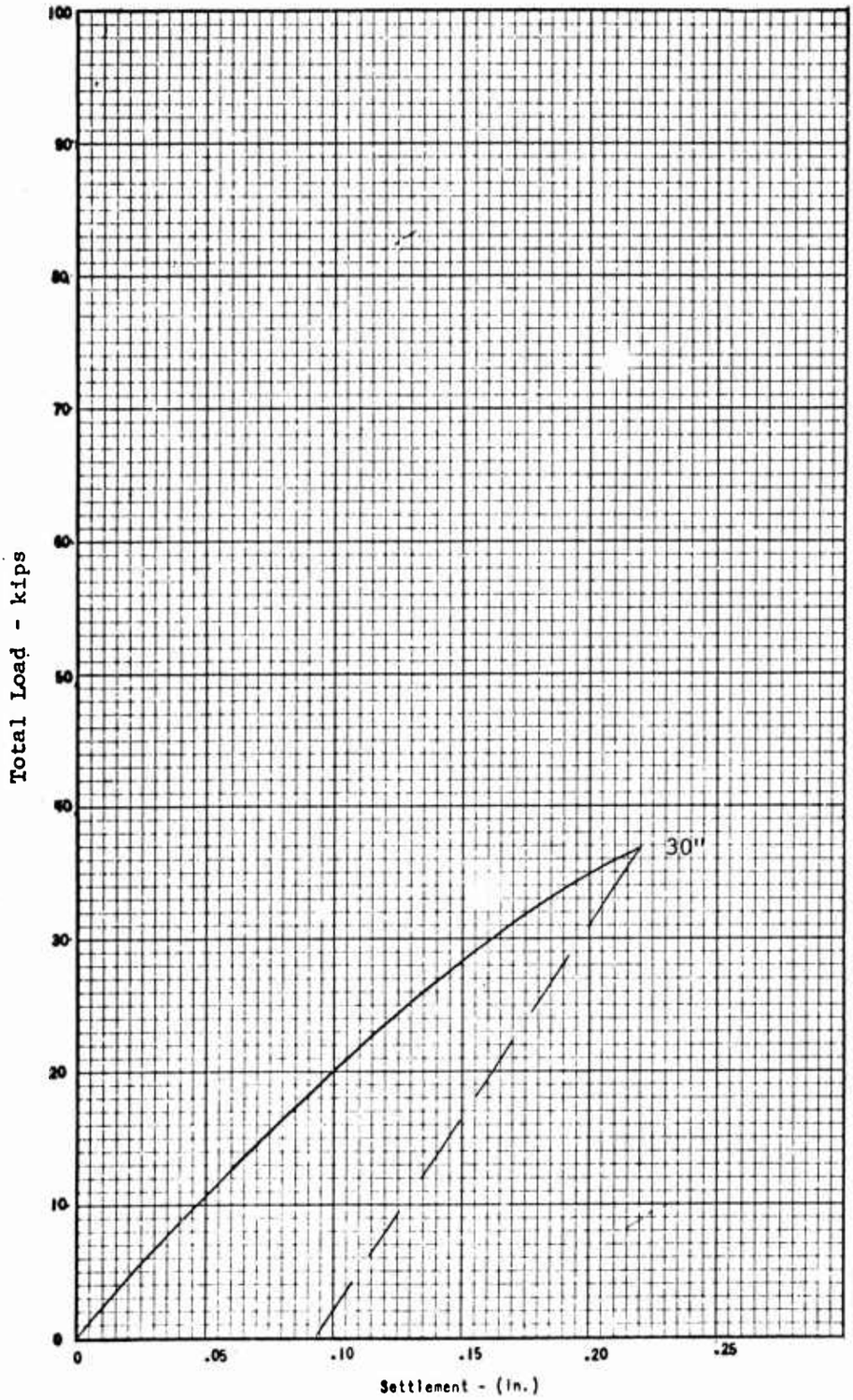


13" below top of asphaltic concrete

K = 344 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	72+00

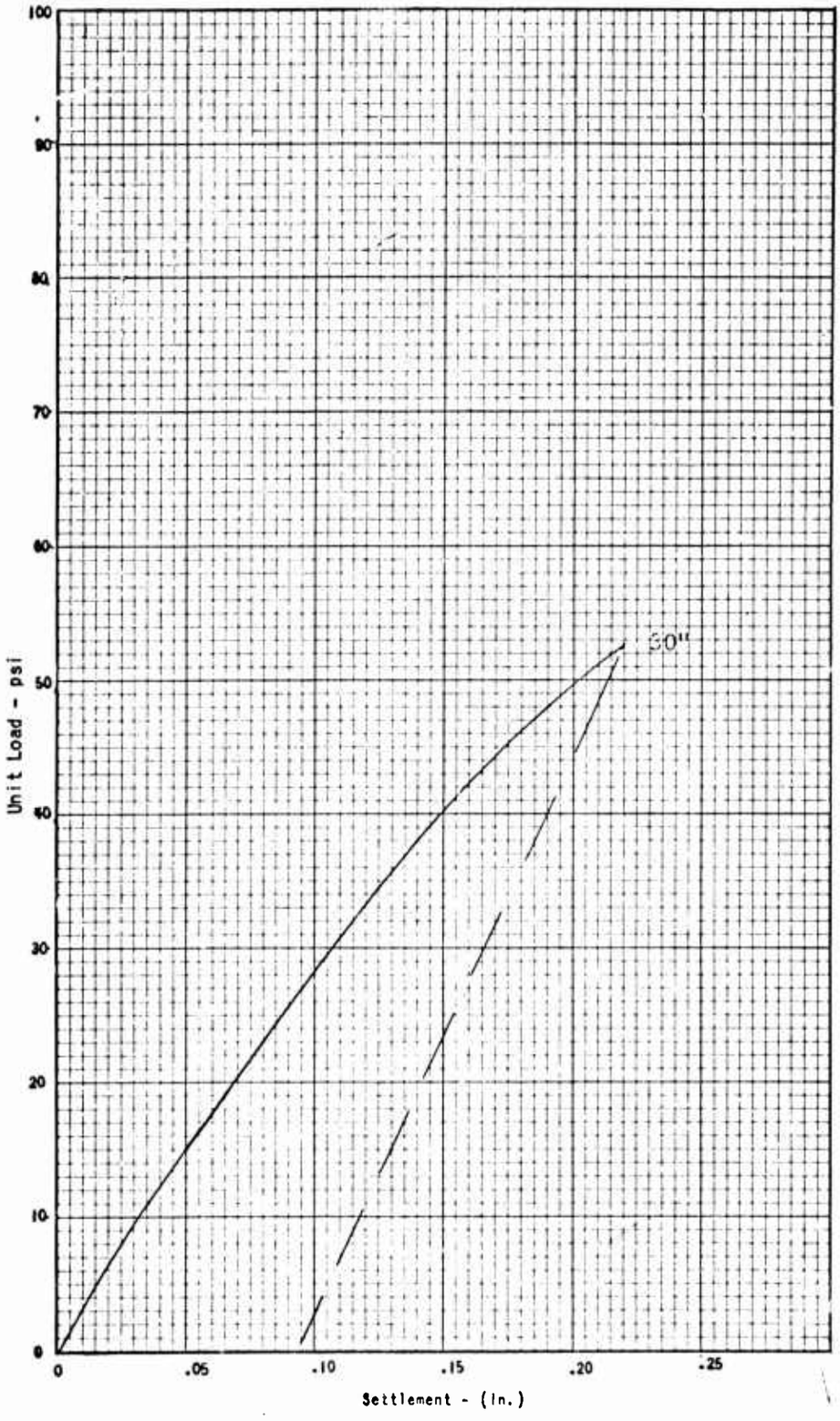


11-1/2" below top of portland cement concrete

11ND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 7-25	72+00

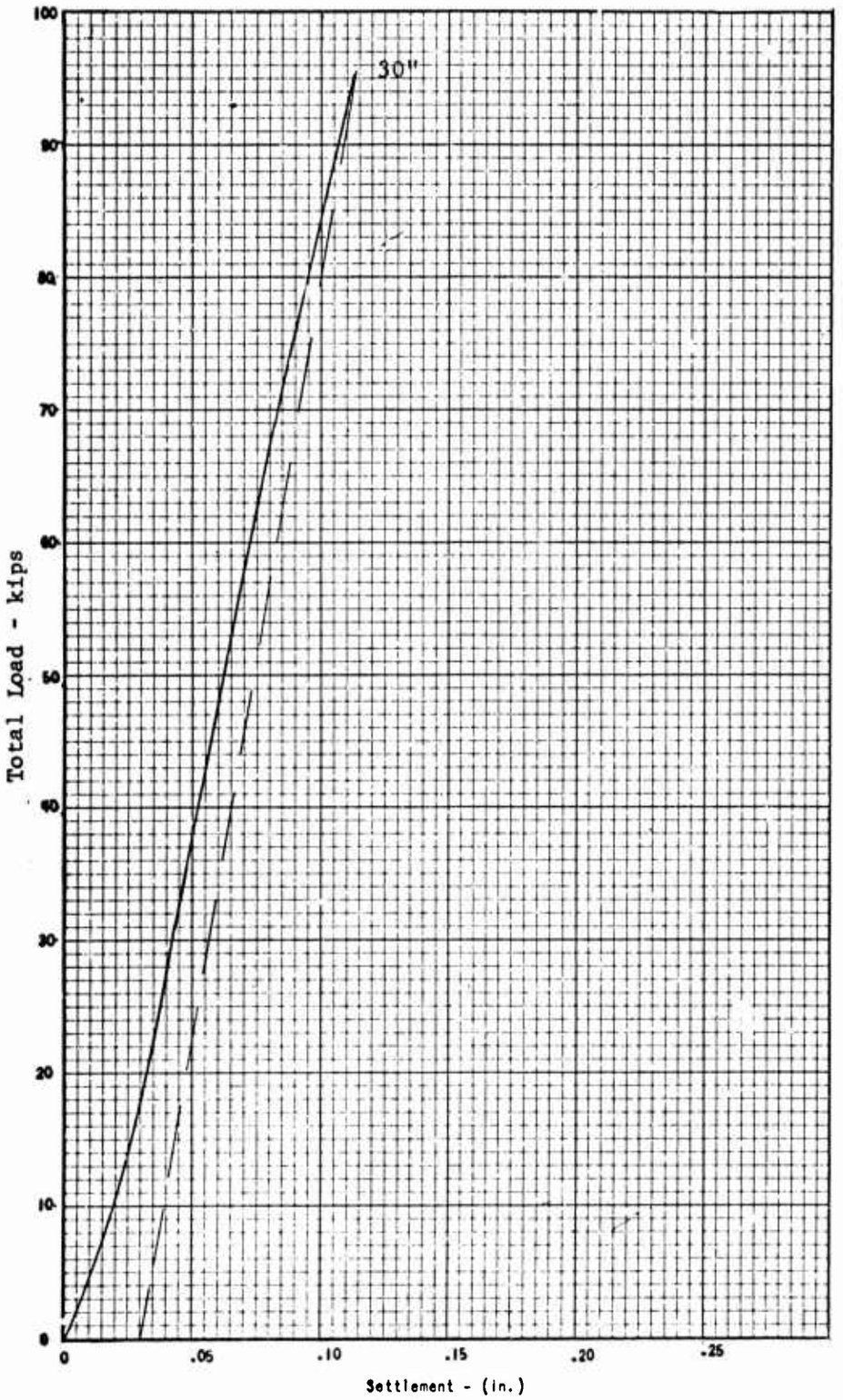


11-1/2" below top of portland cement concrete

K = 300 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	24+00

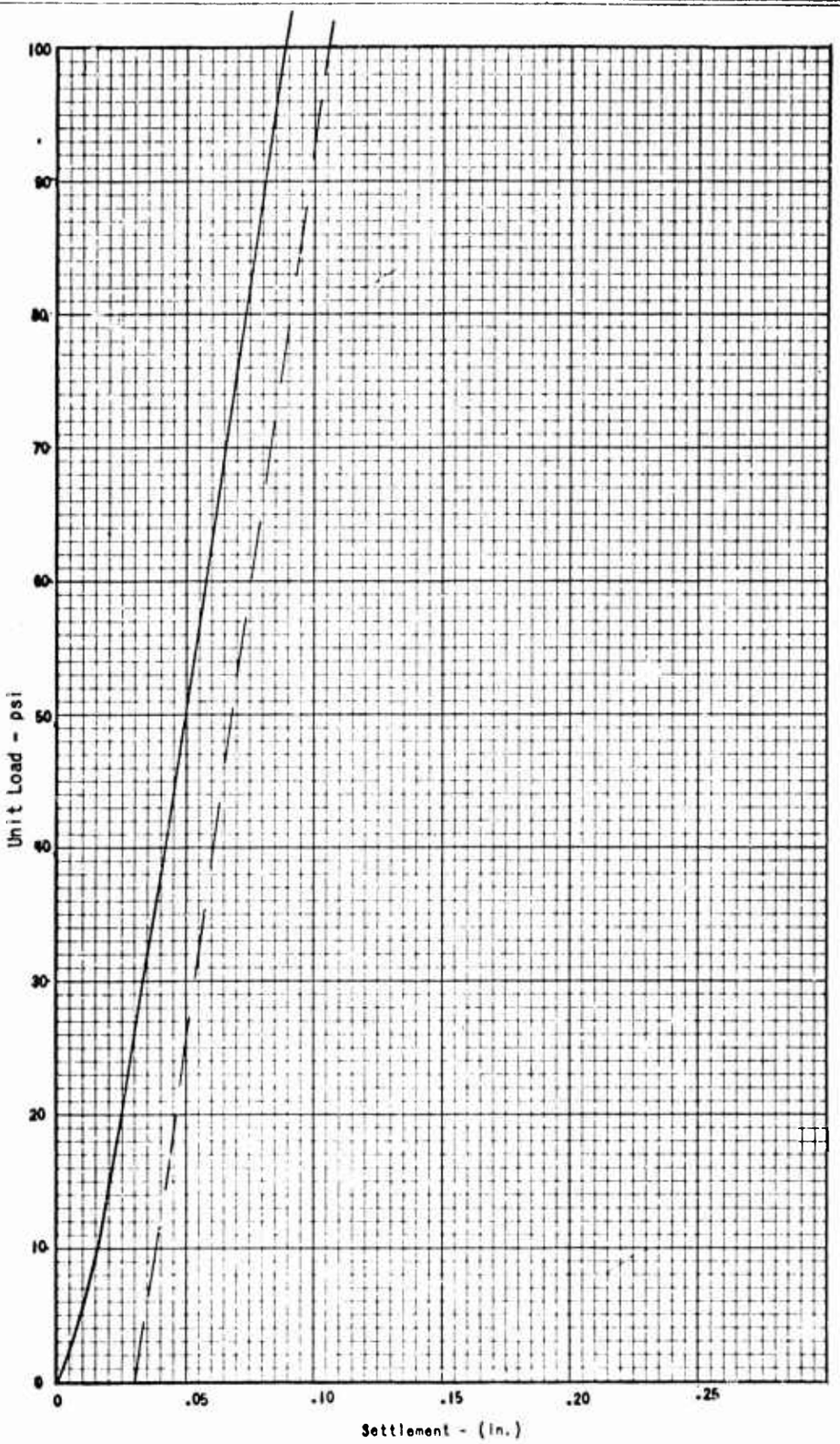


3-3/4" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	24+00

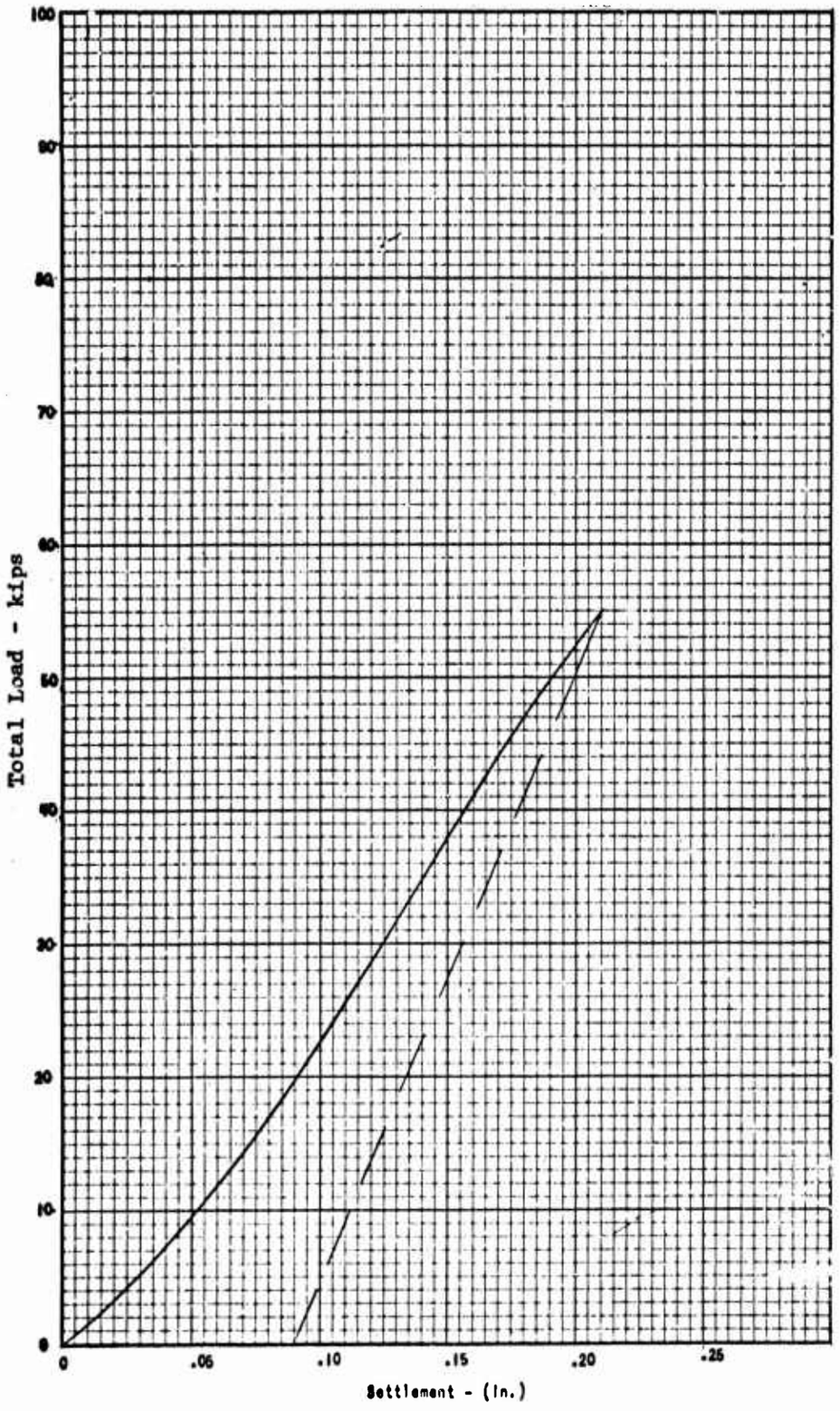


3-3/4" below top of portland-cement concrete

K = 1010 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	24+00

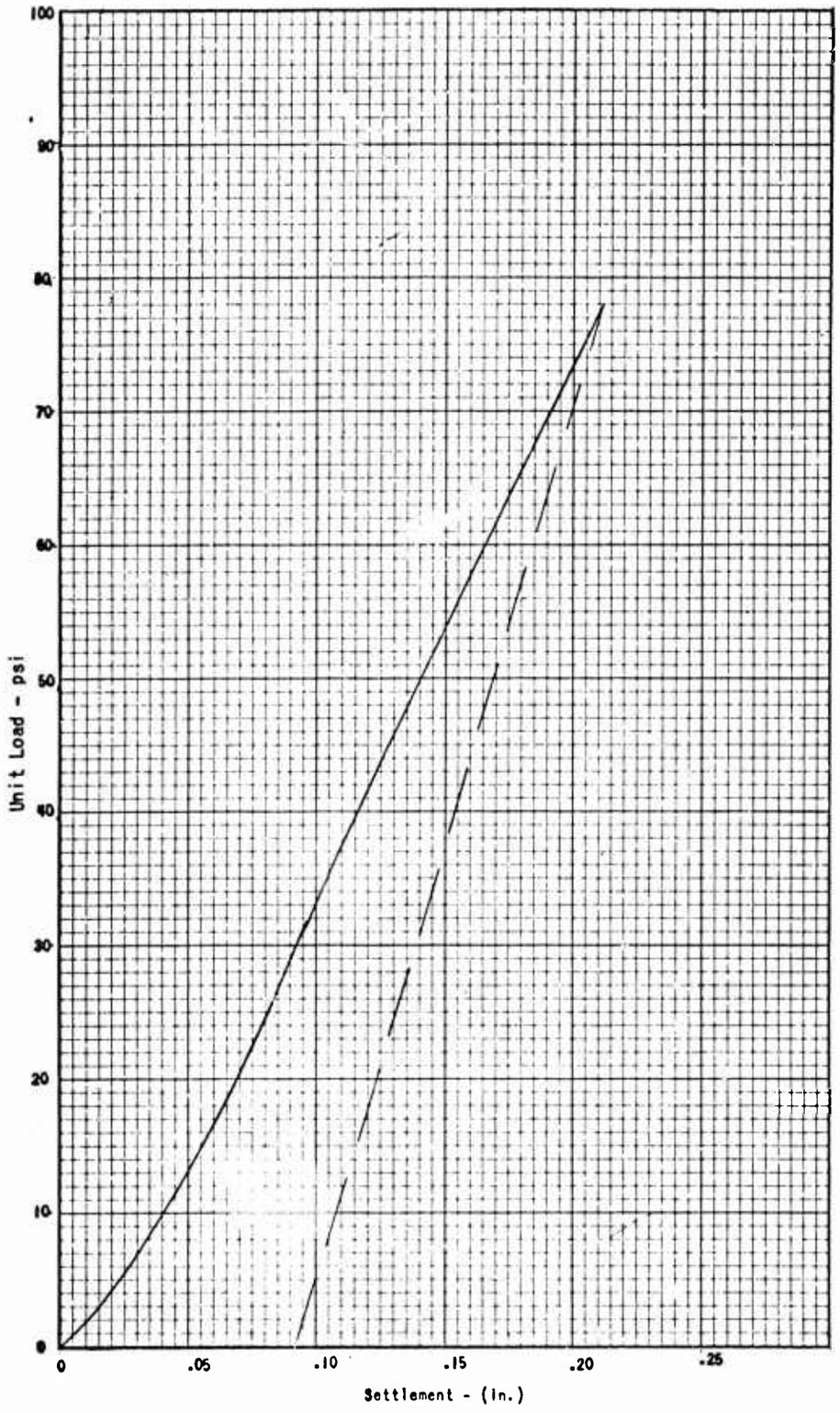


14-1/2" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	24+00



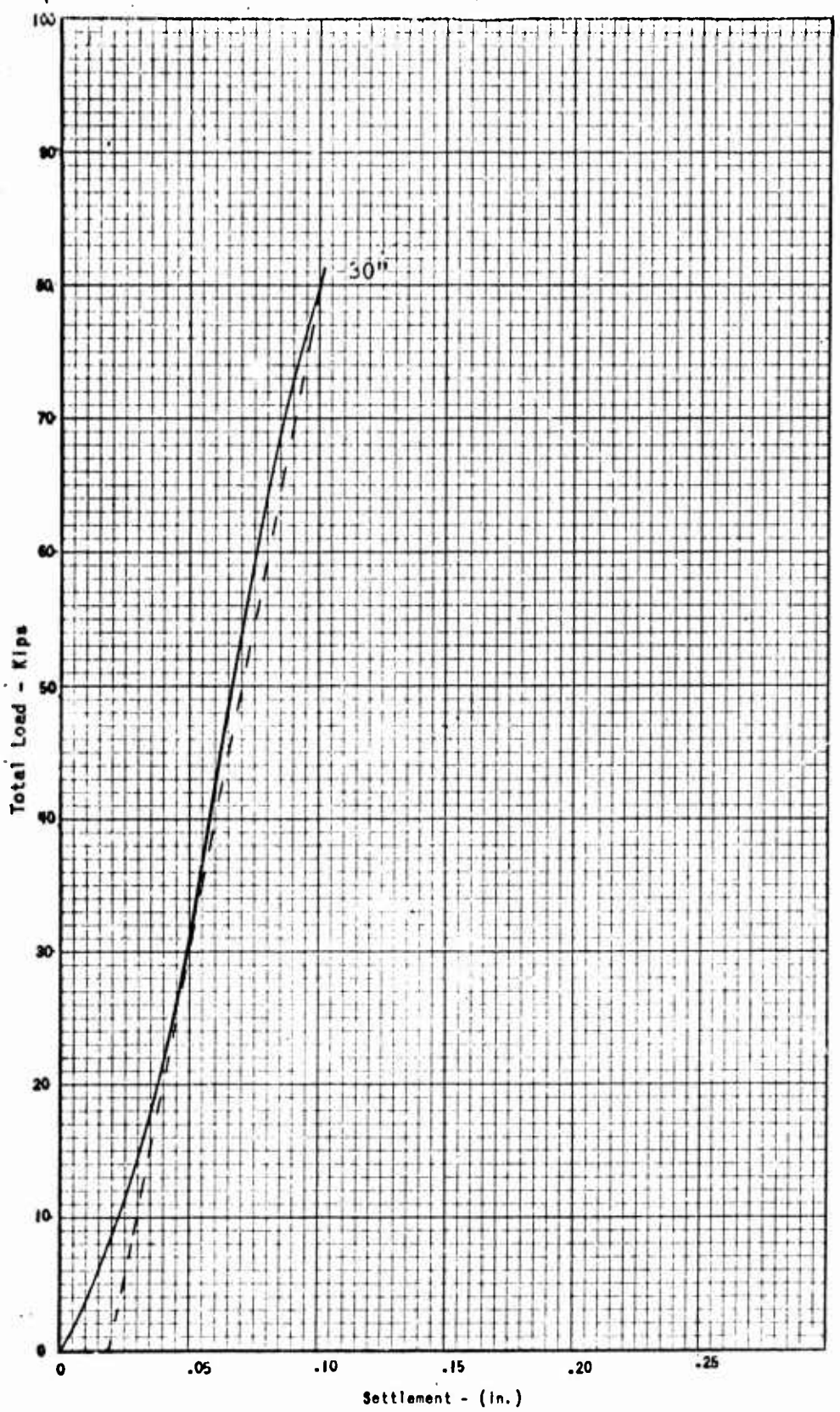
14-1/2" below top asphaltic concrete

K = 264 pci

NAVFAC NCEL 3960/20 (1-64)

TOTAL LOAD vs. DEFLECTION

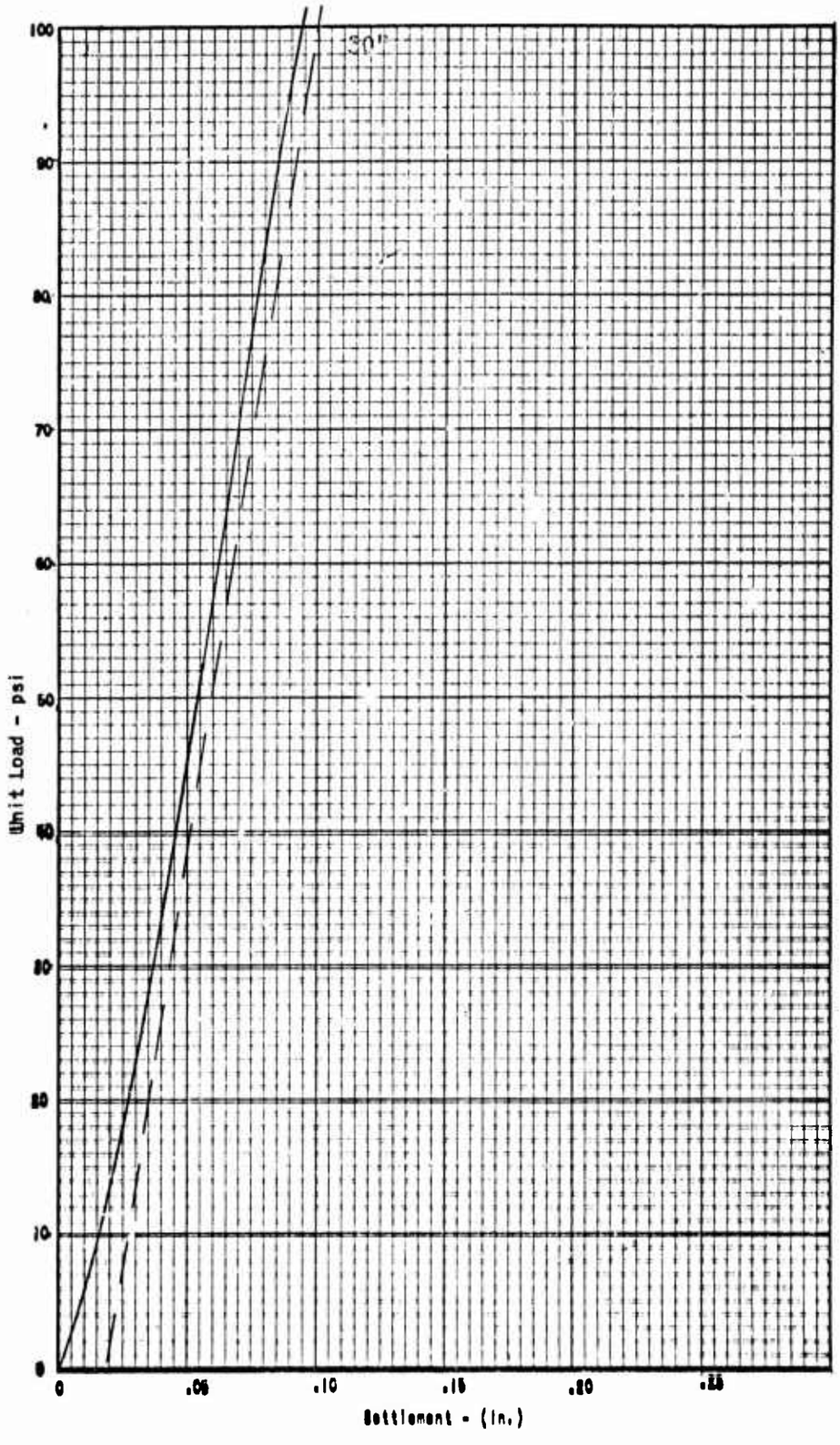
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	44+00



3-1/2" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	44+00

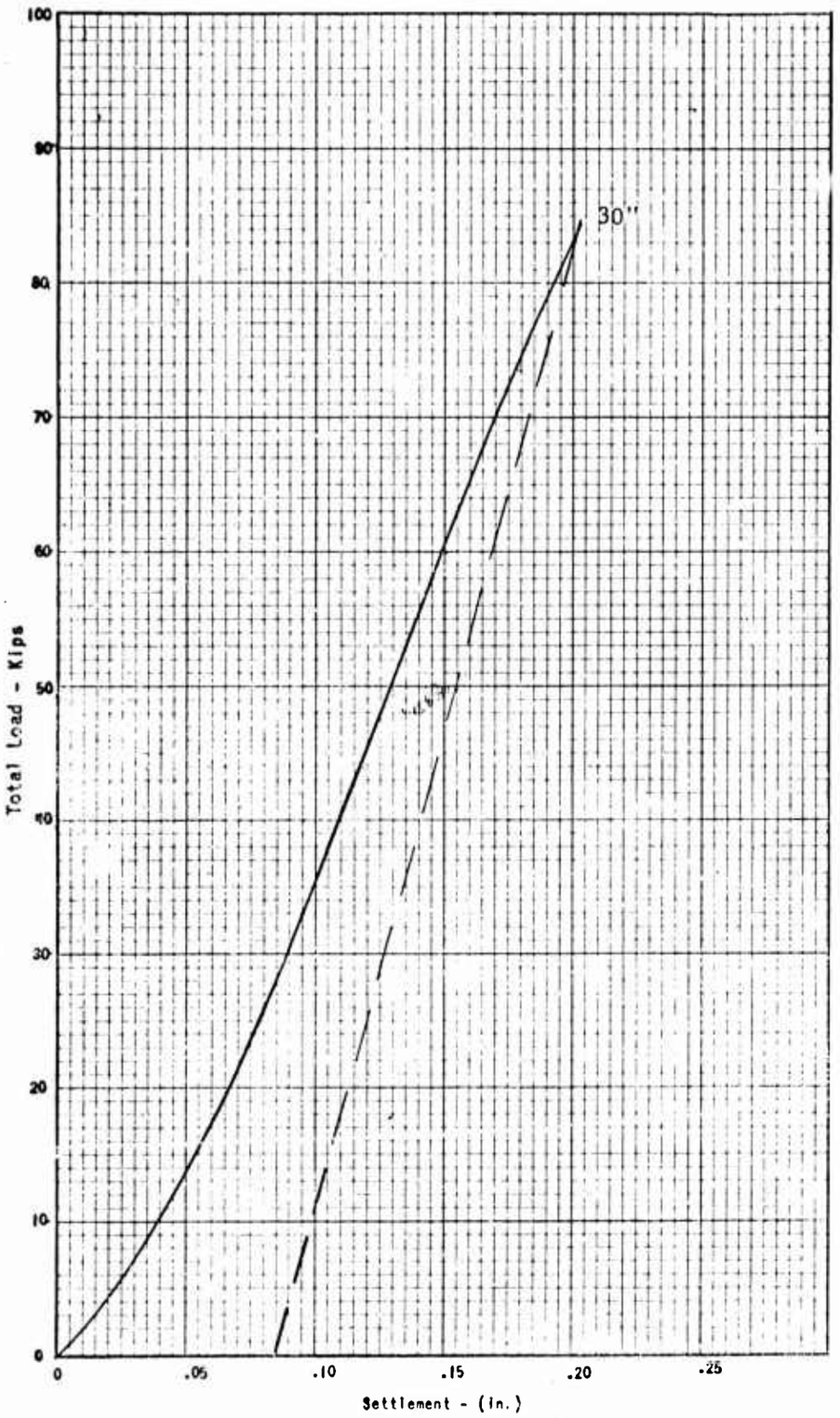


3-1/2" below top of asphaltic concrete

K = 904 pci

NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

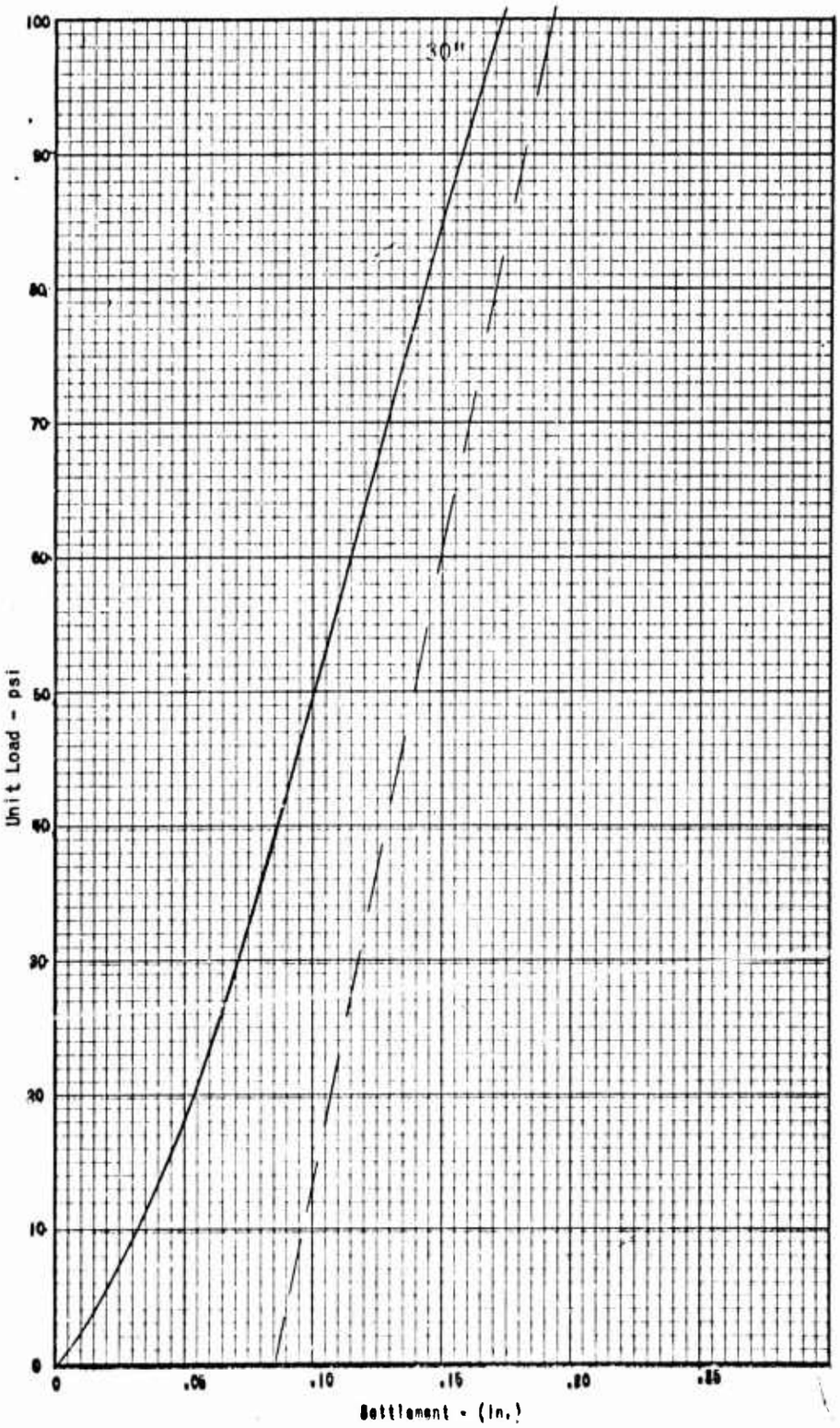
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	44+00



12" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	44+00

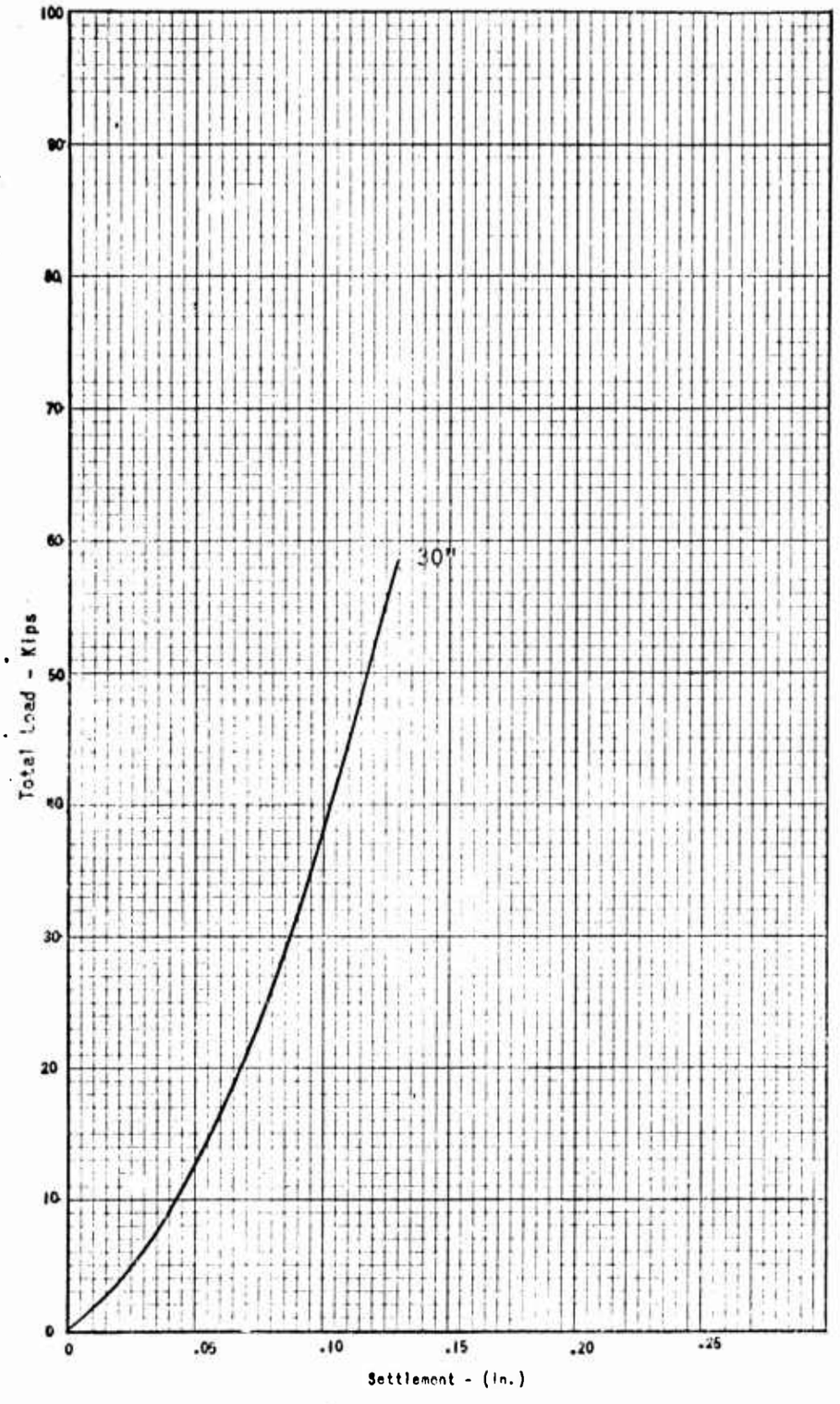


12" below top of asphaltic concrete

K = 566 pci

NAVFAC NCEL 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

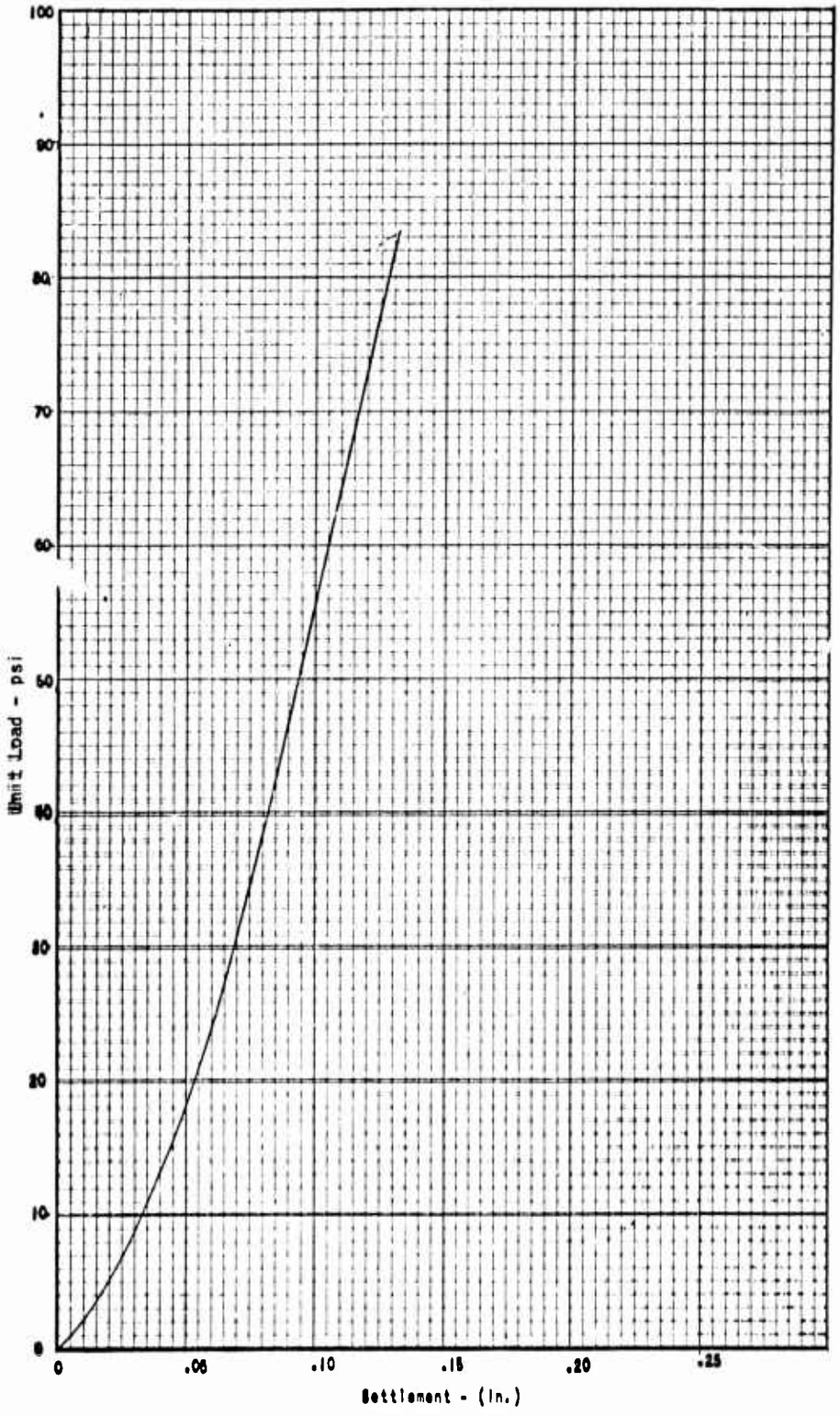
FACILITY	LOCATION	STATION
USNAS China Lake, California	Runway 14-32	44+00



22" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	44+00

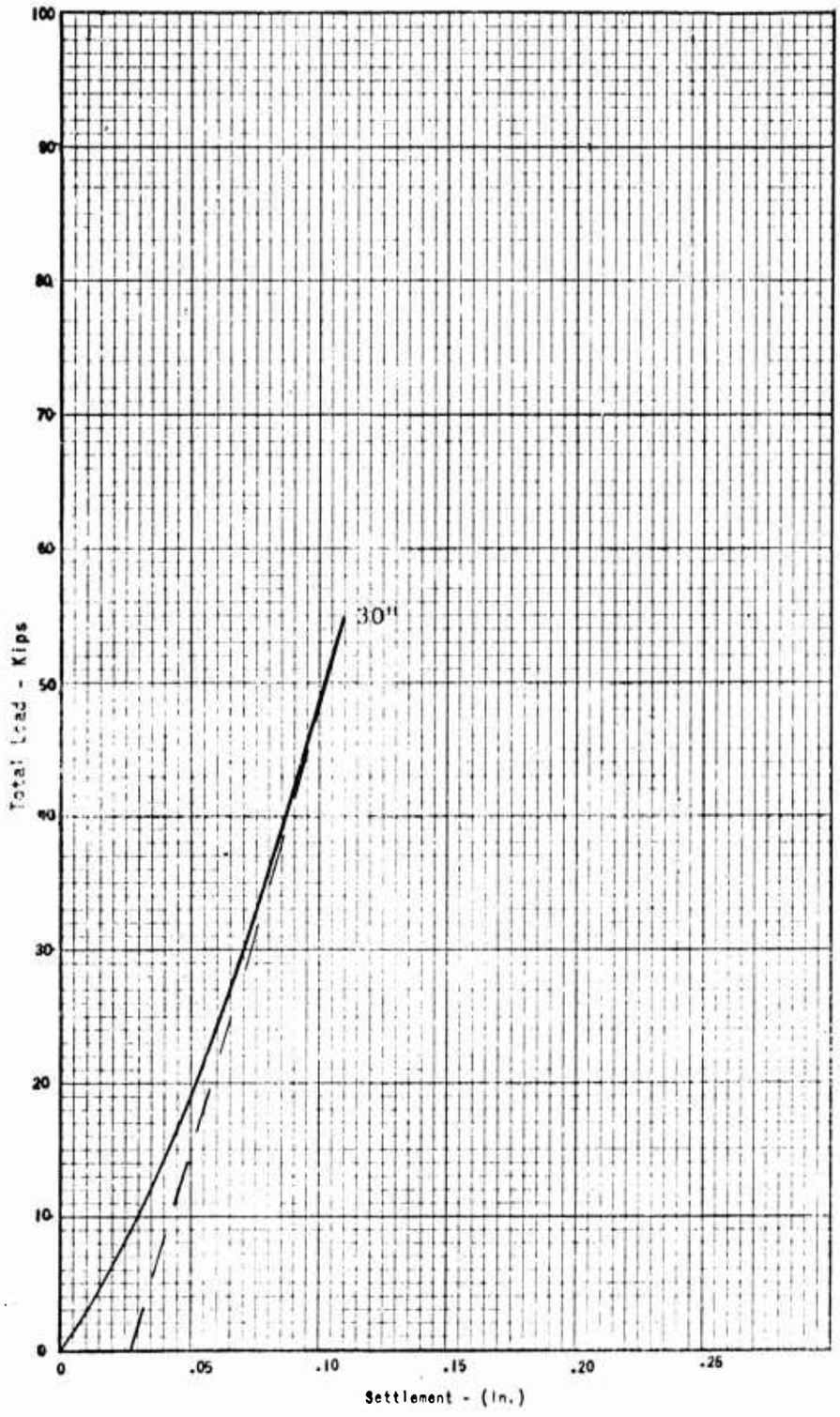


22" below top of asphaltic concrete

K = 368 pci

NAVFAC 3960/20 (1-64) TOTAL LOAD vs. DEFLECTION

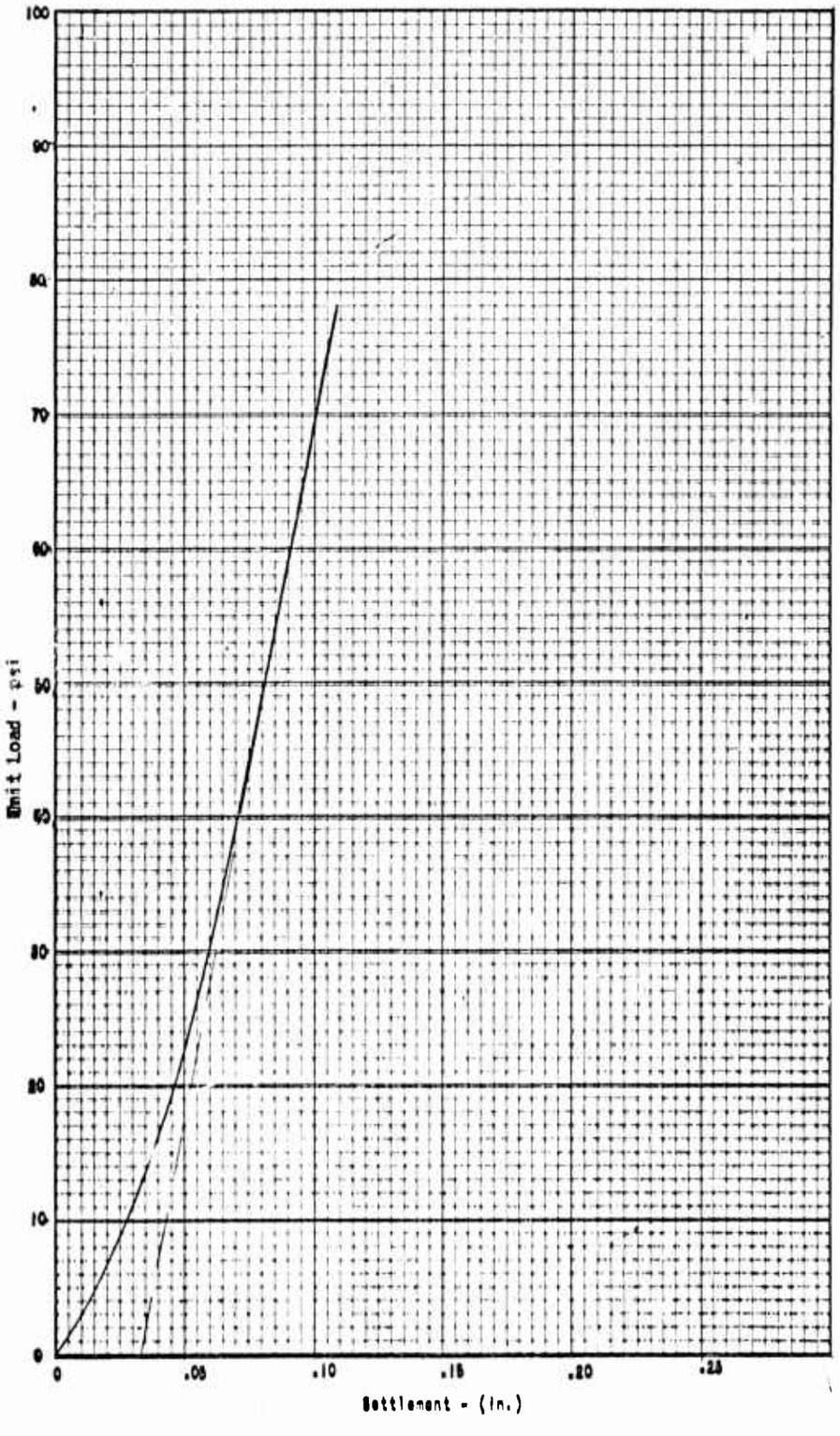
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	62+00



3-1/2" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	62+00

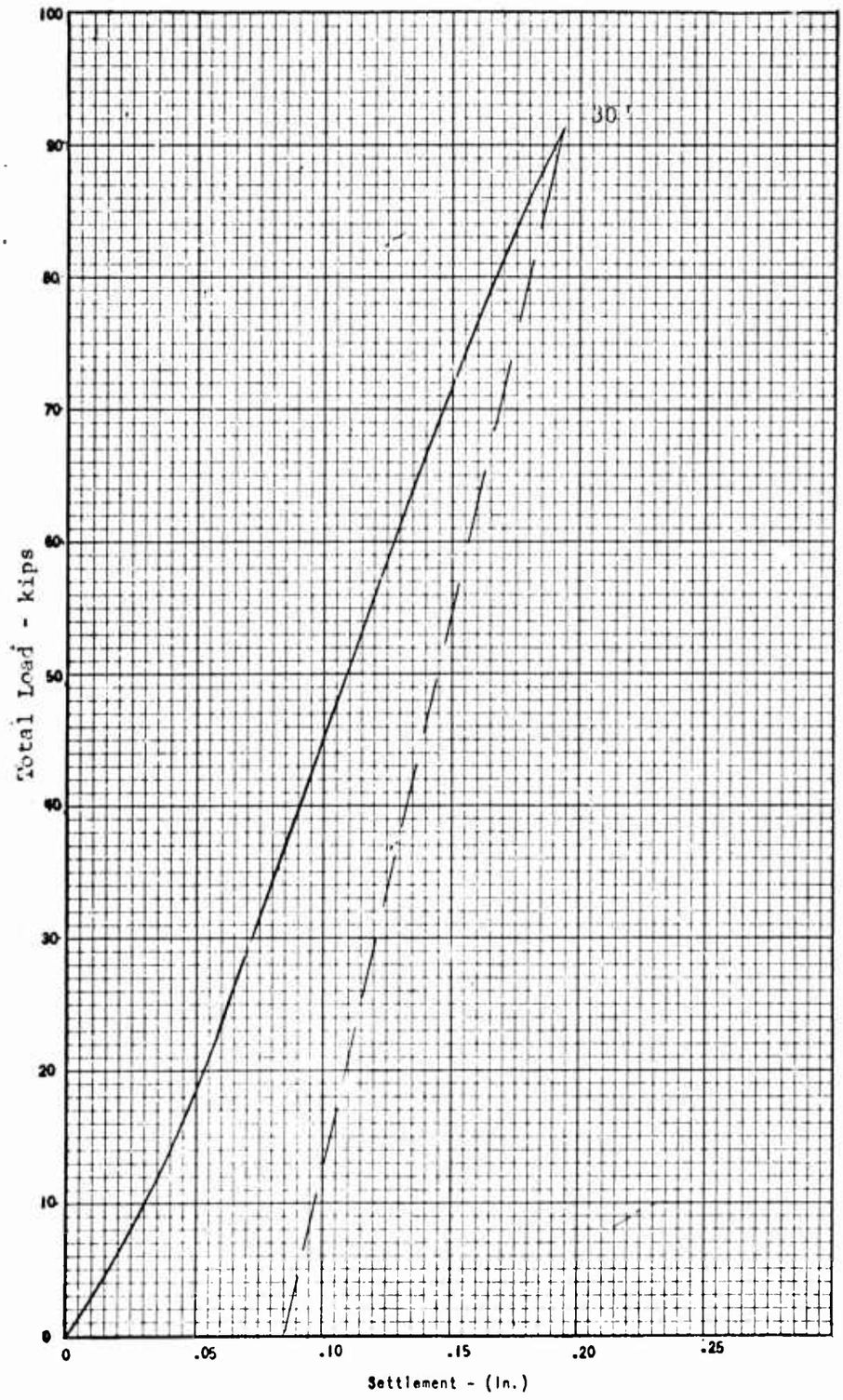


3-1/2" below top of asphaltic concrete

K = 454 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

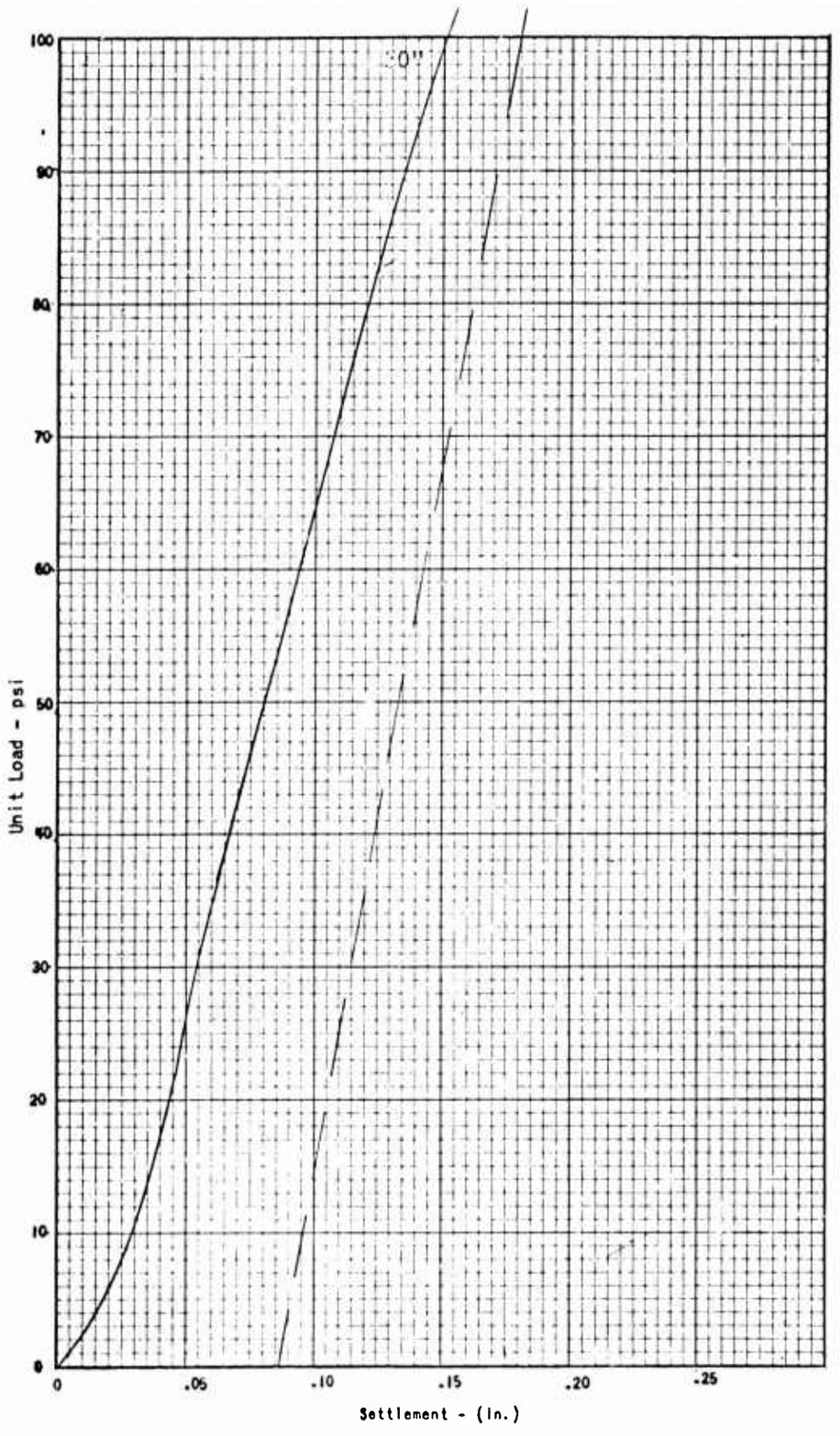
FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	62+00



13" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	62+00

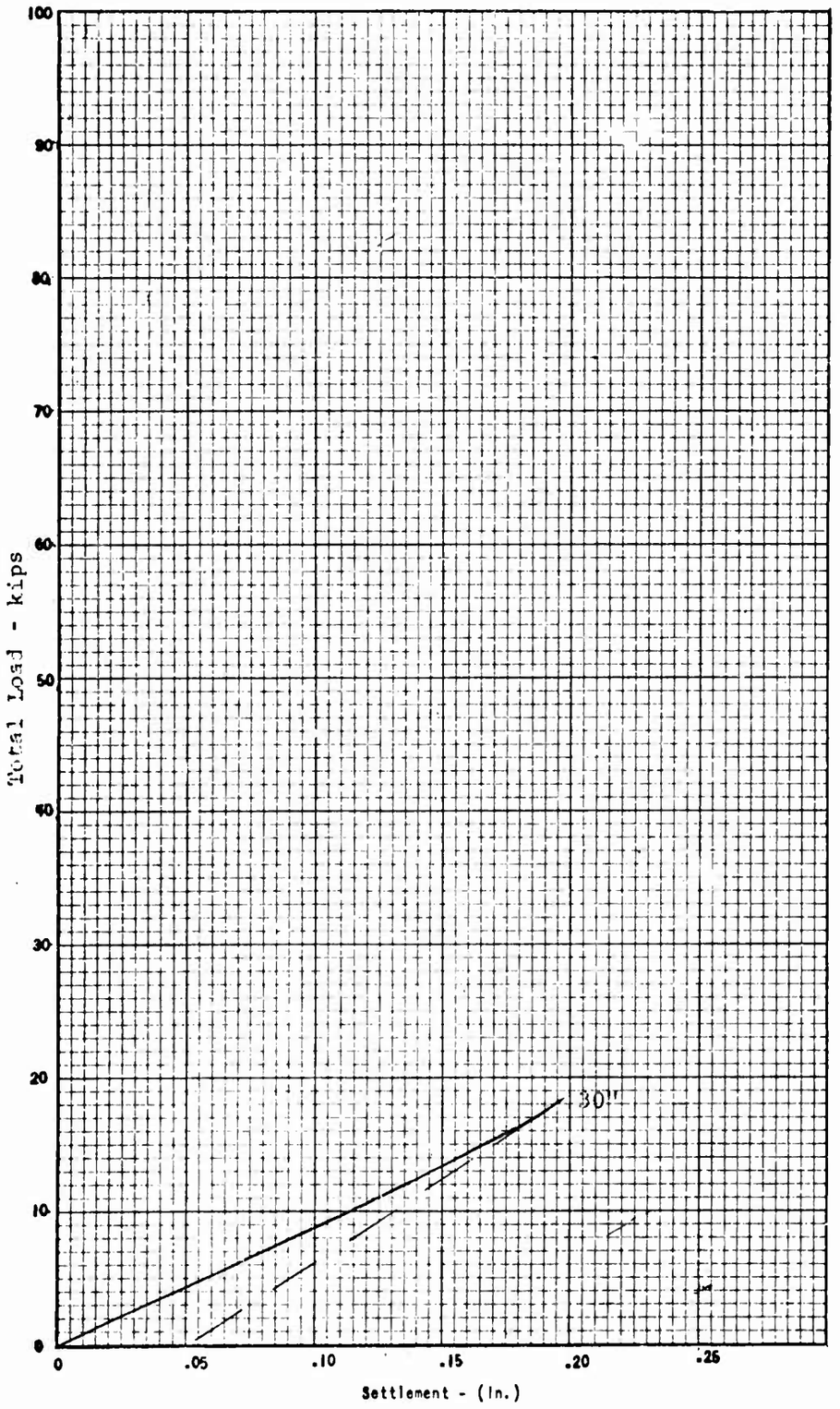


13" below top of asphaltic concrete

K = 530 pci

11ND NCEL 3960/24 (8-64) [illegible] LOAD vs. DEFLECTION

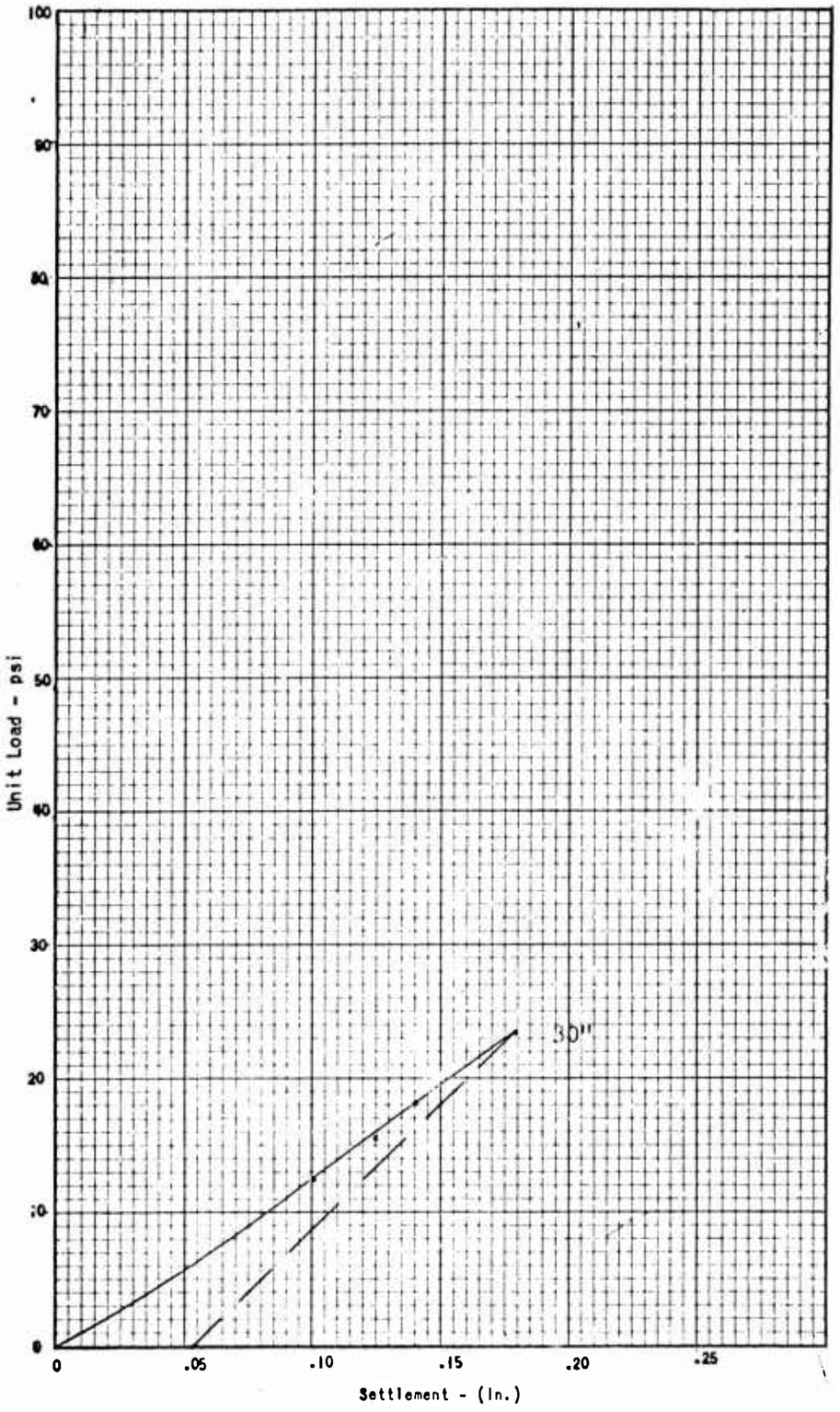
FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	10+00



13" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	10+00

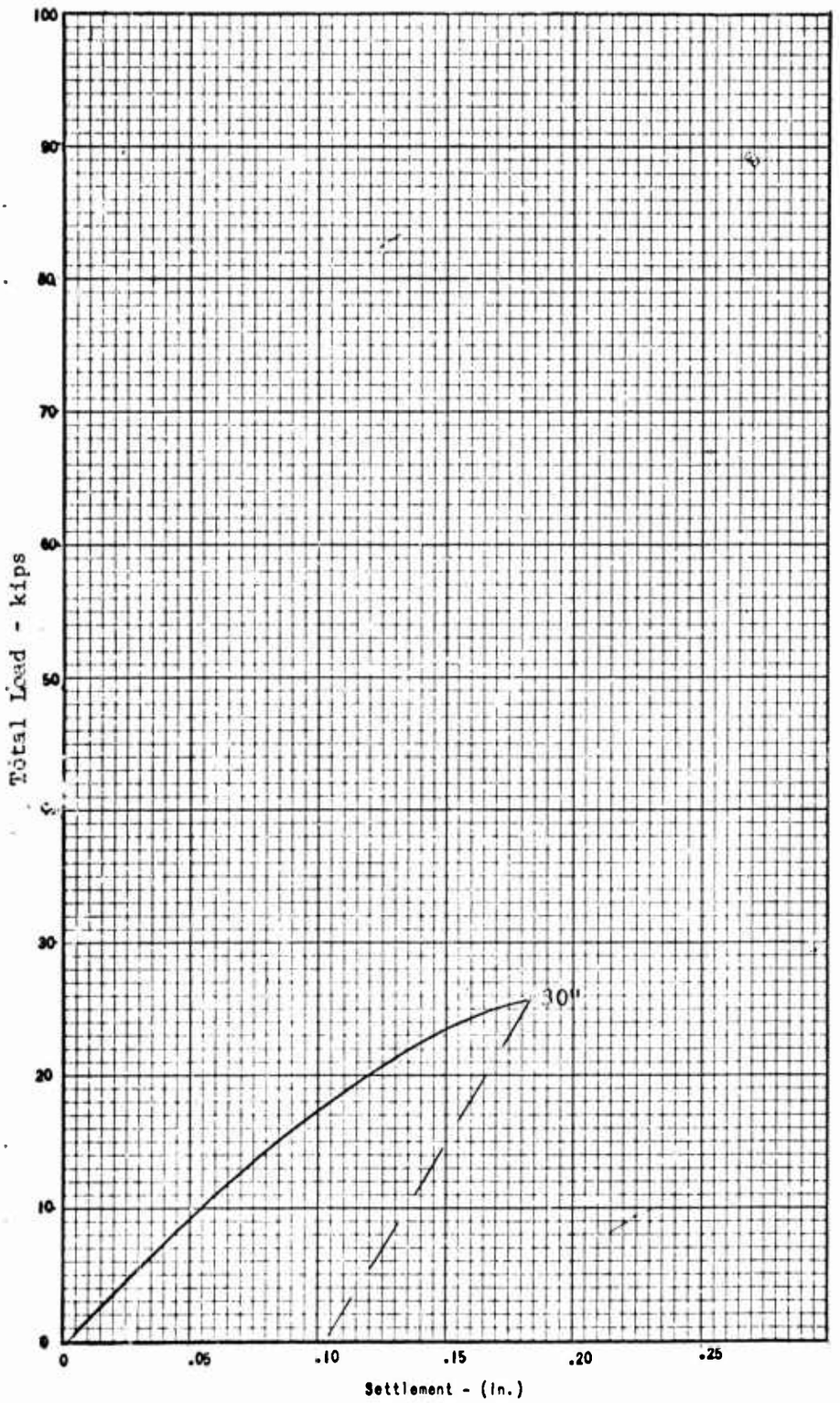


13" below top of asphaltic concrete

K = 116 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

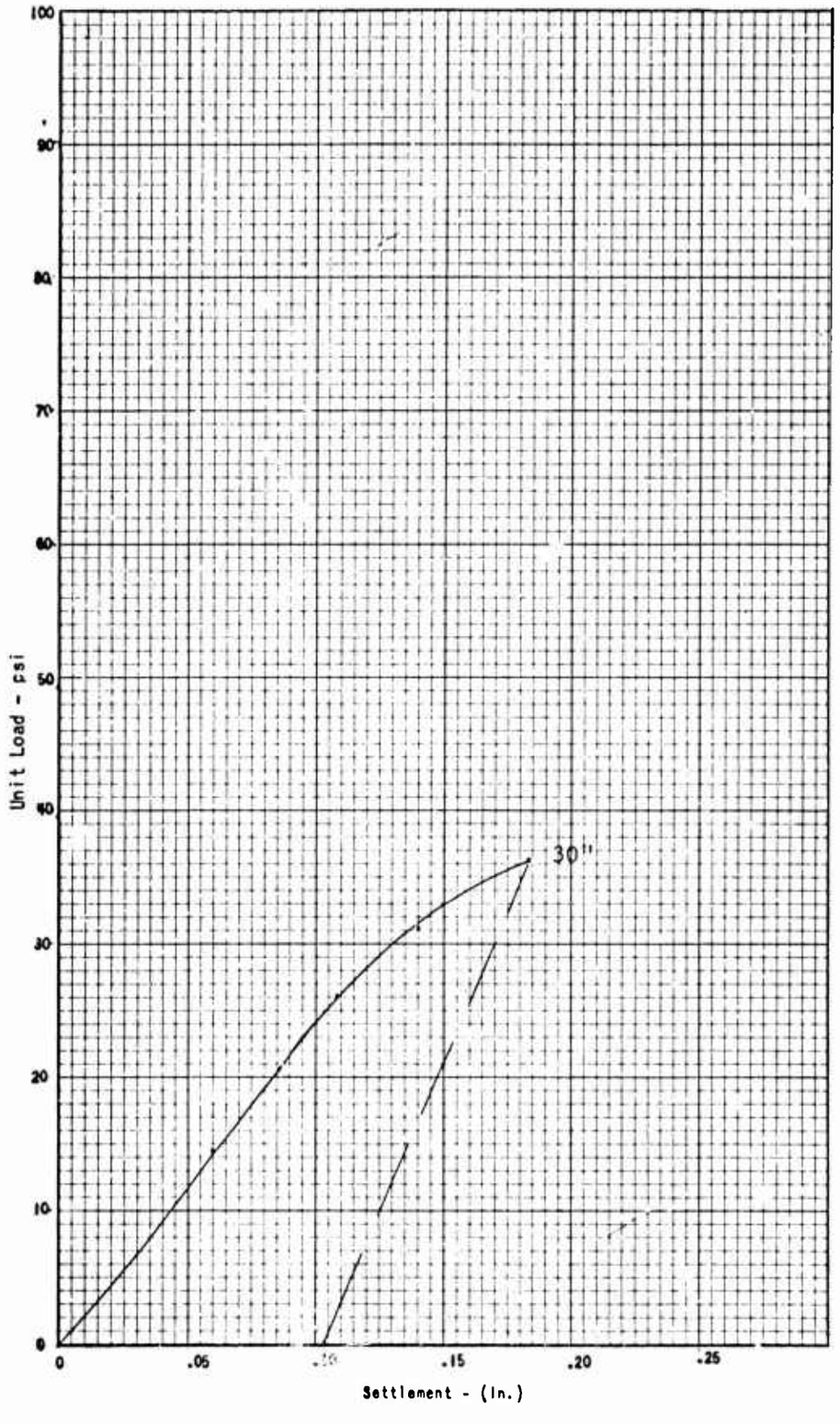
FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	40+00



15" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	40+00

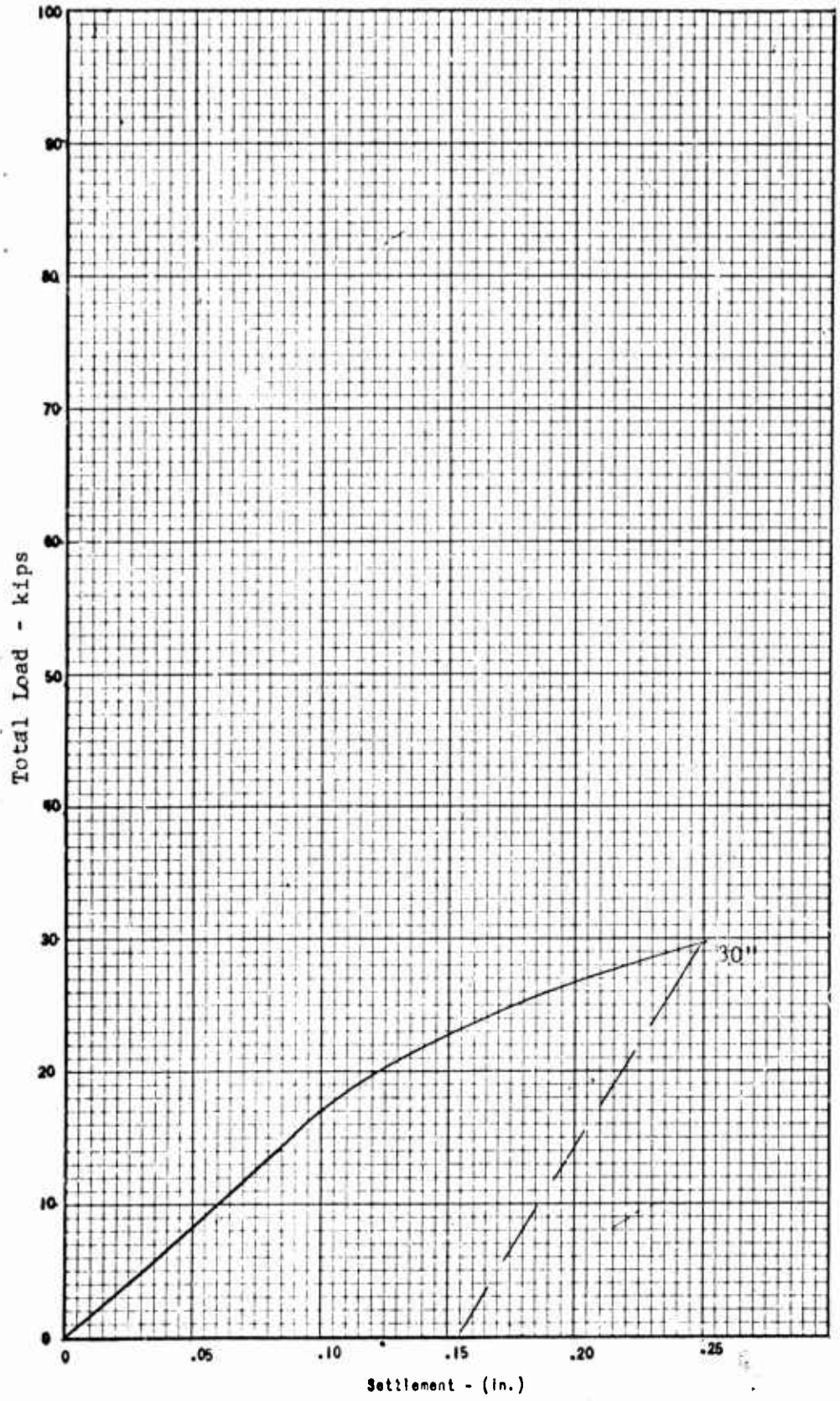


15" below top of asphaltic concrete

K = 236 pci

1IND NCEL 3960/24 (8-64) AXIAL LOAD vs. DEFLECTION

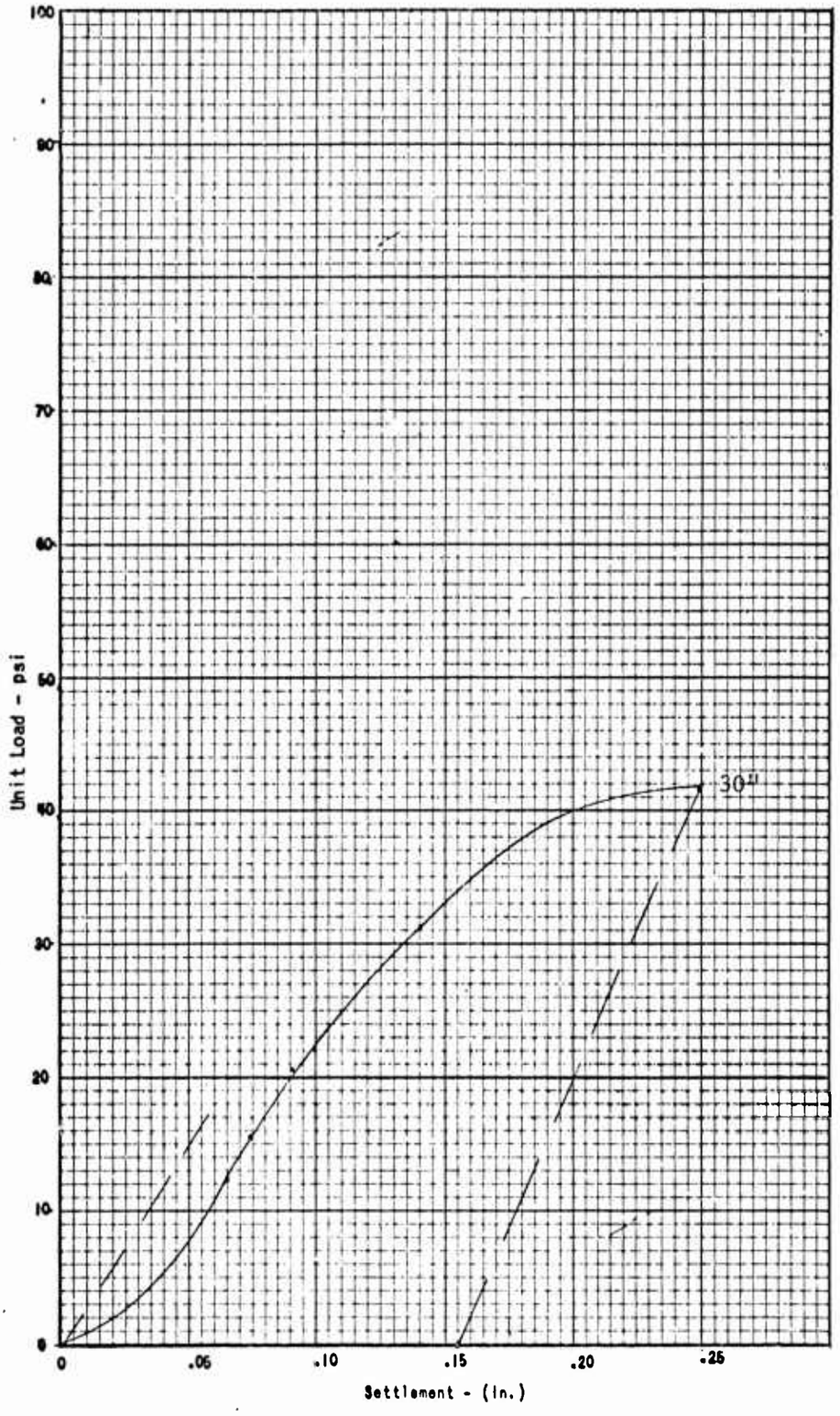
FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	60+00



12" below top of asphaltic concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	60+00

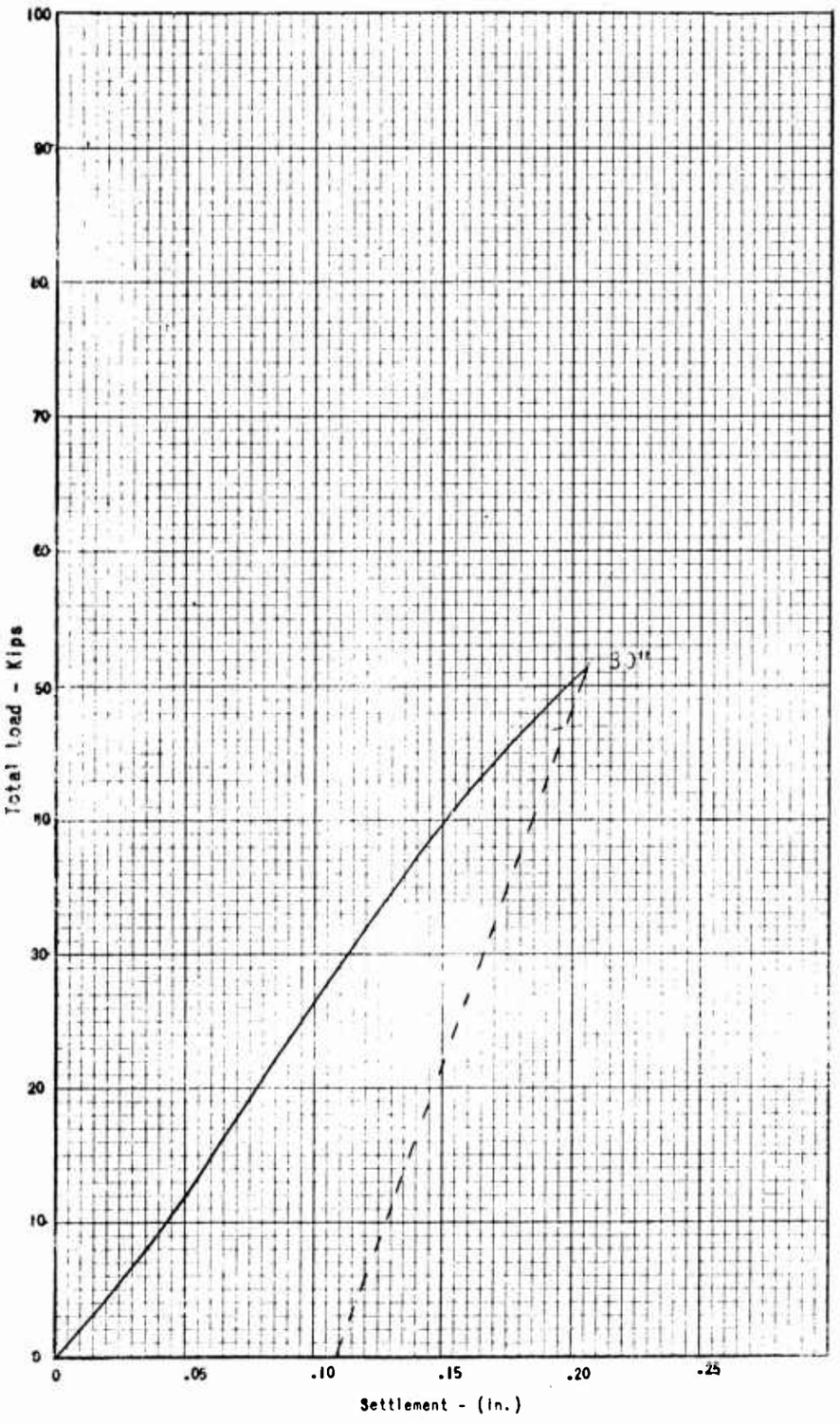


12" below top of asphaltic concrete

K = 298 pci

NAVFAC NCEL 7960/20 (1-64) TOTAL LOAD vs. DEFLECTION

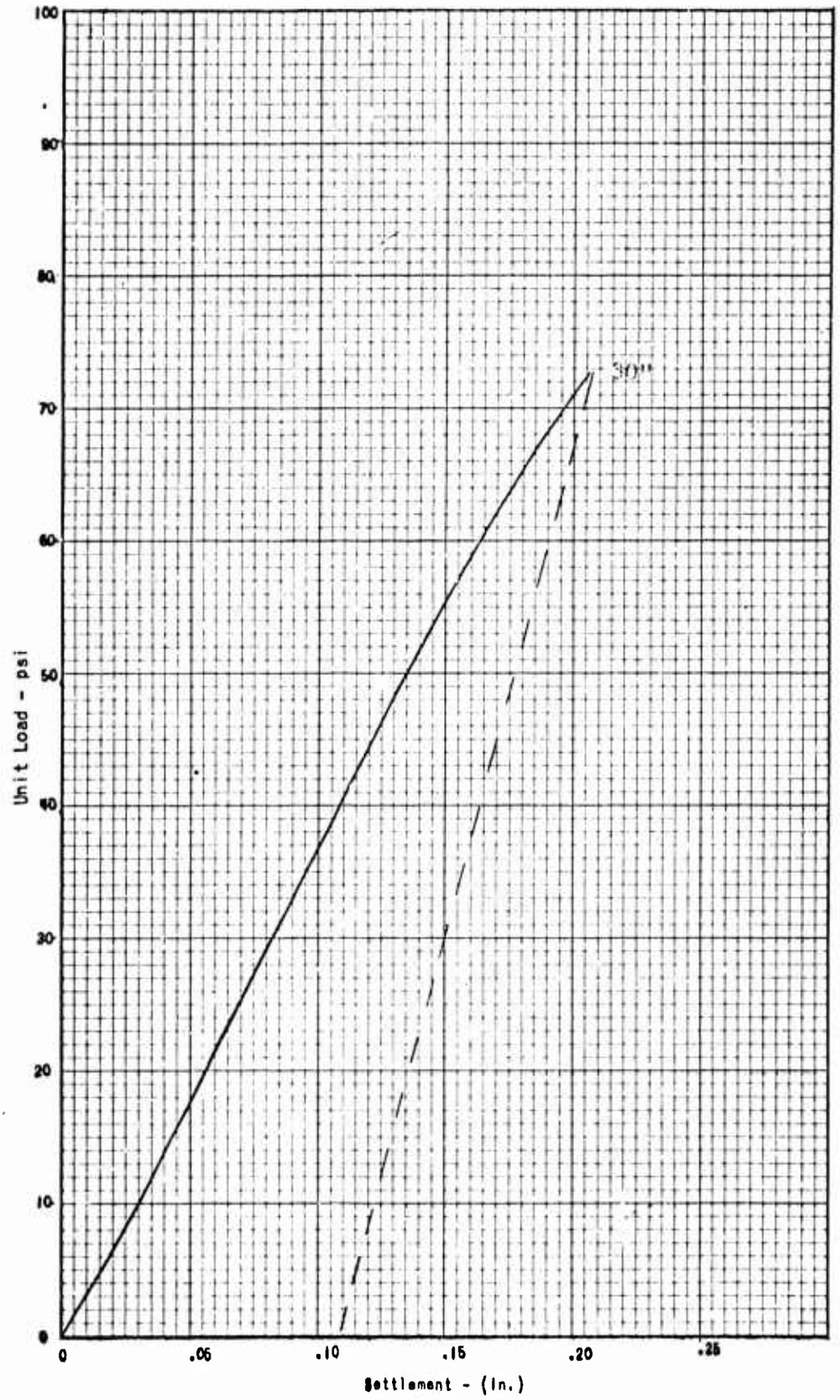
FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 3	2+00



10-1/2" below top of portland cement concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 3	2+00

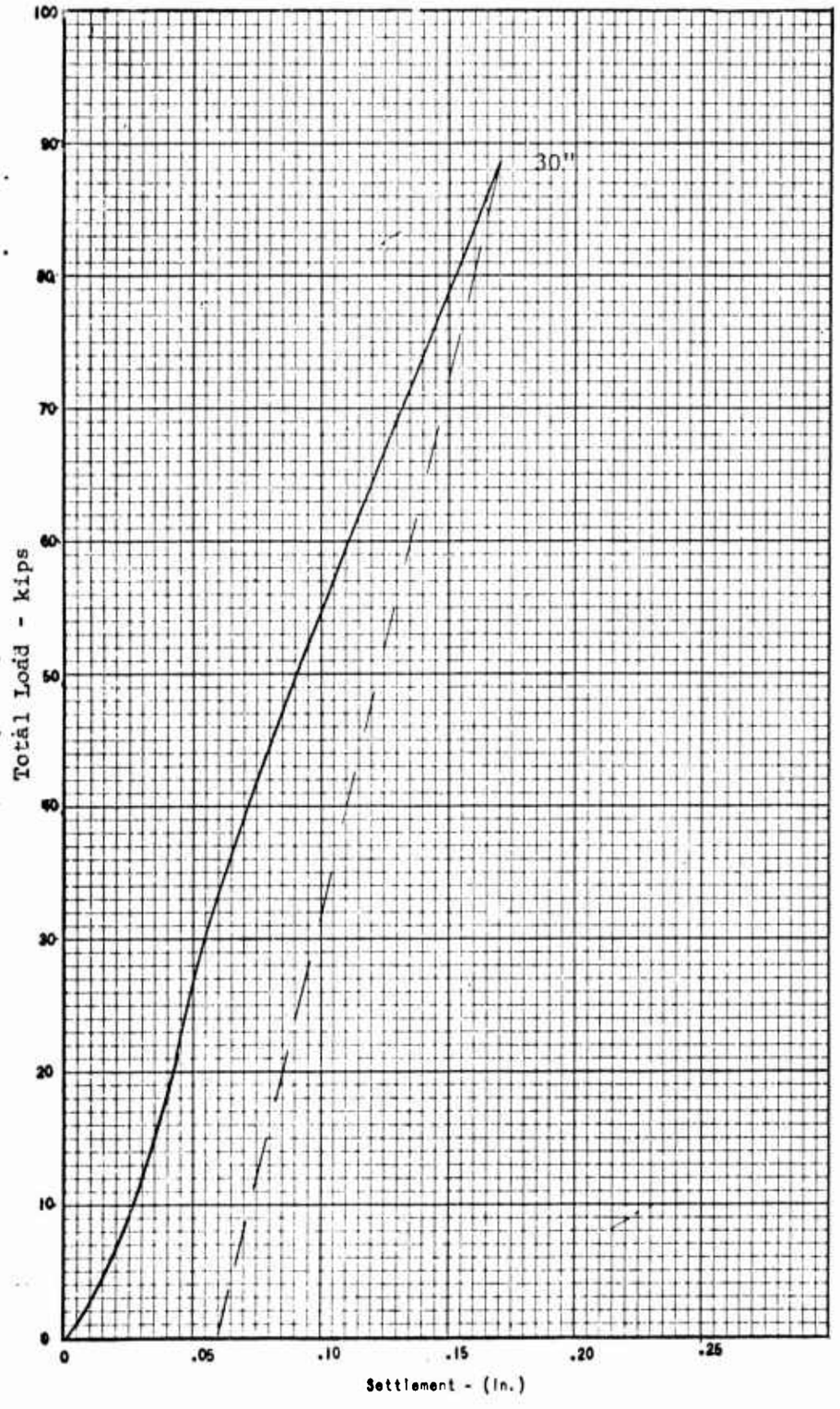


10-1/2" below top of portland cement concrete

K = 554 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 3	24+00

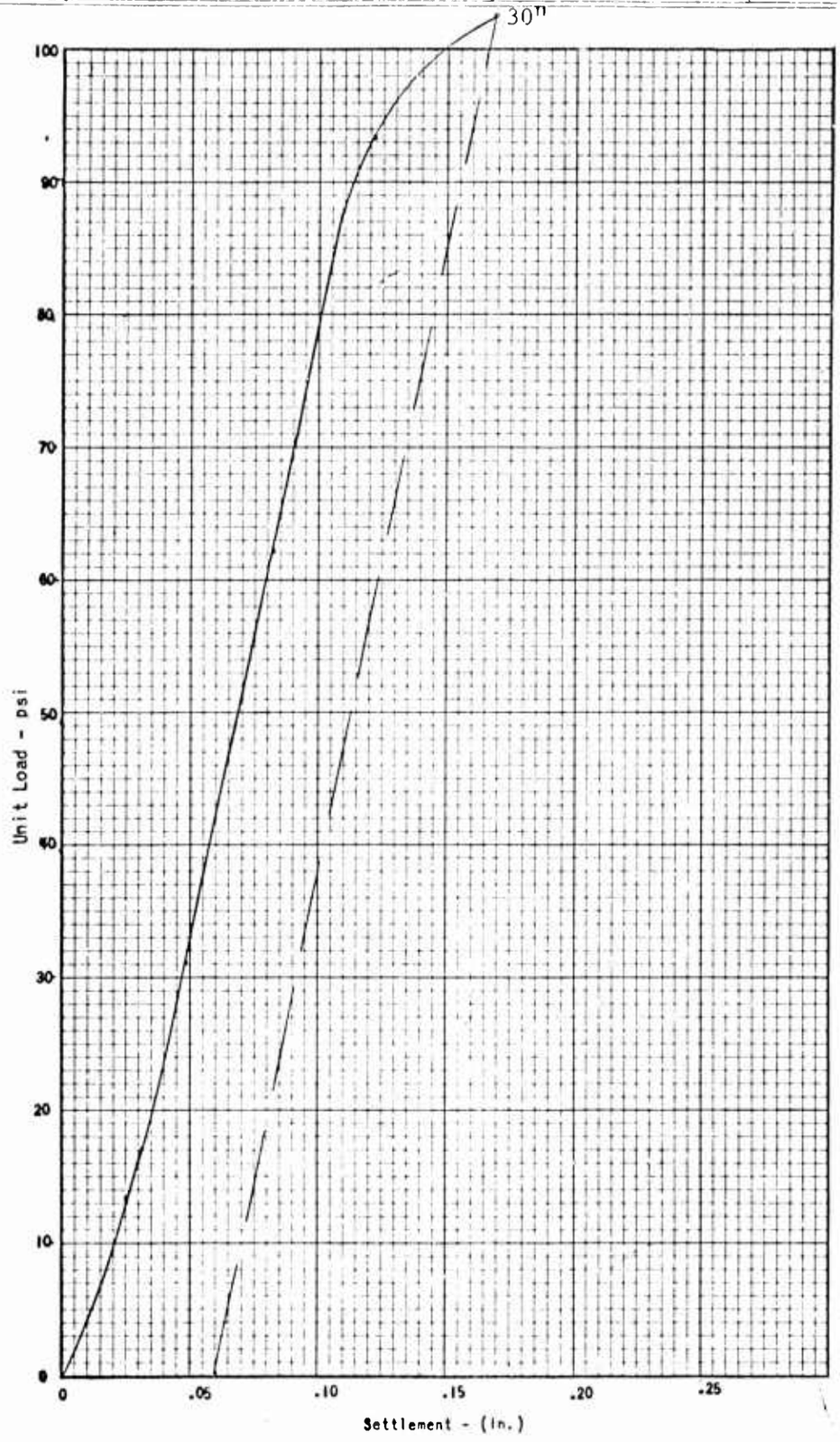


9" below top of asphaltic concrete

1IND NCEL 3960/24 (8-64)

UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 3	24+00

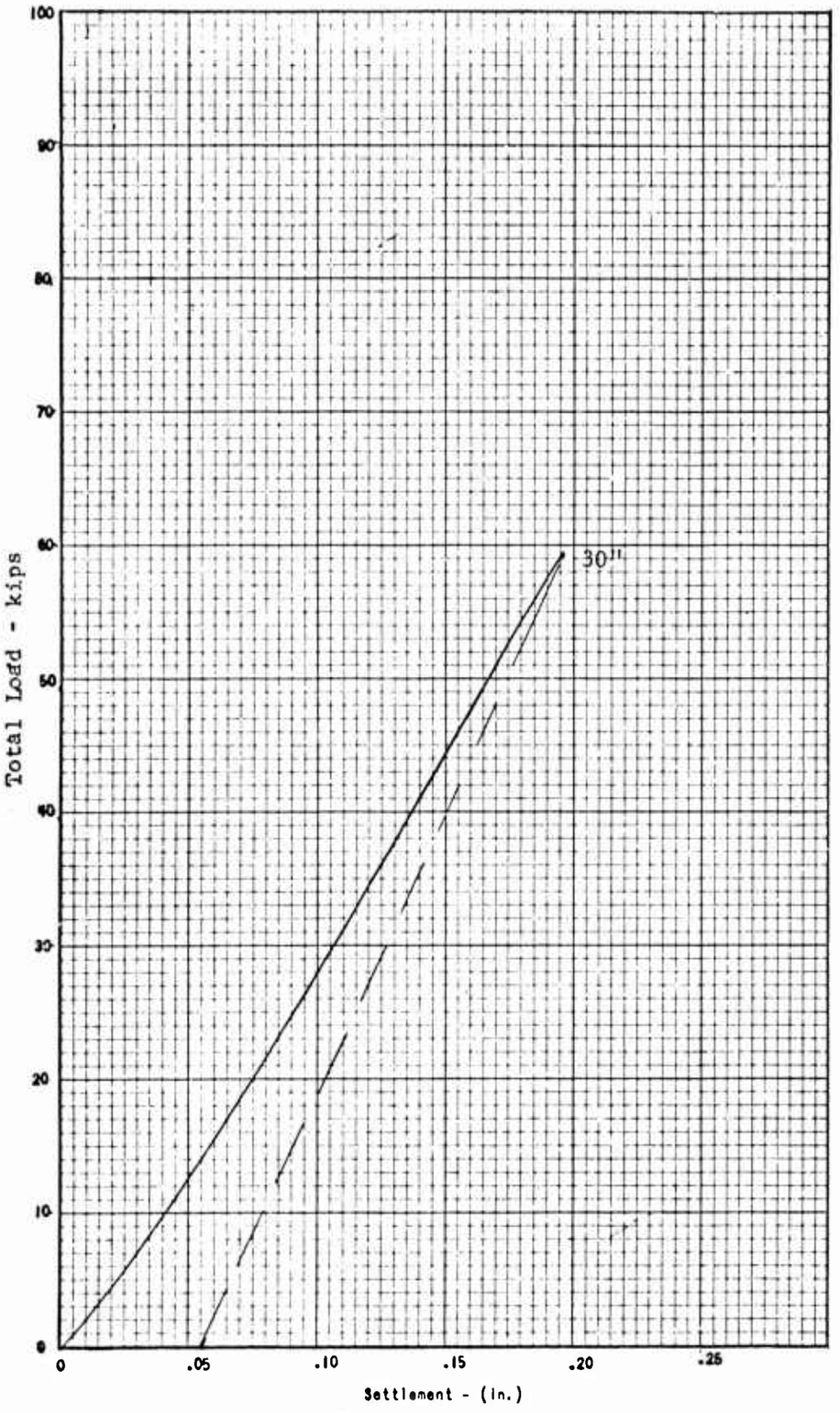


9" below top of asphaltic concrete

K = 660 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

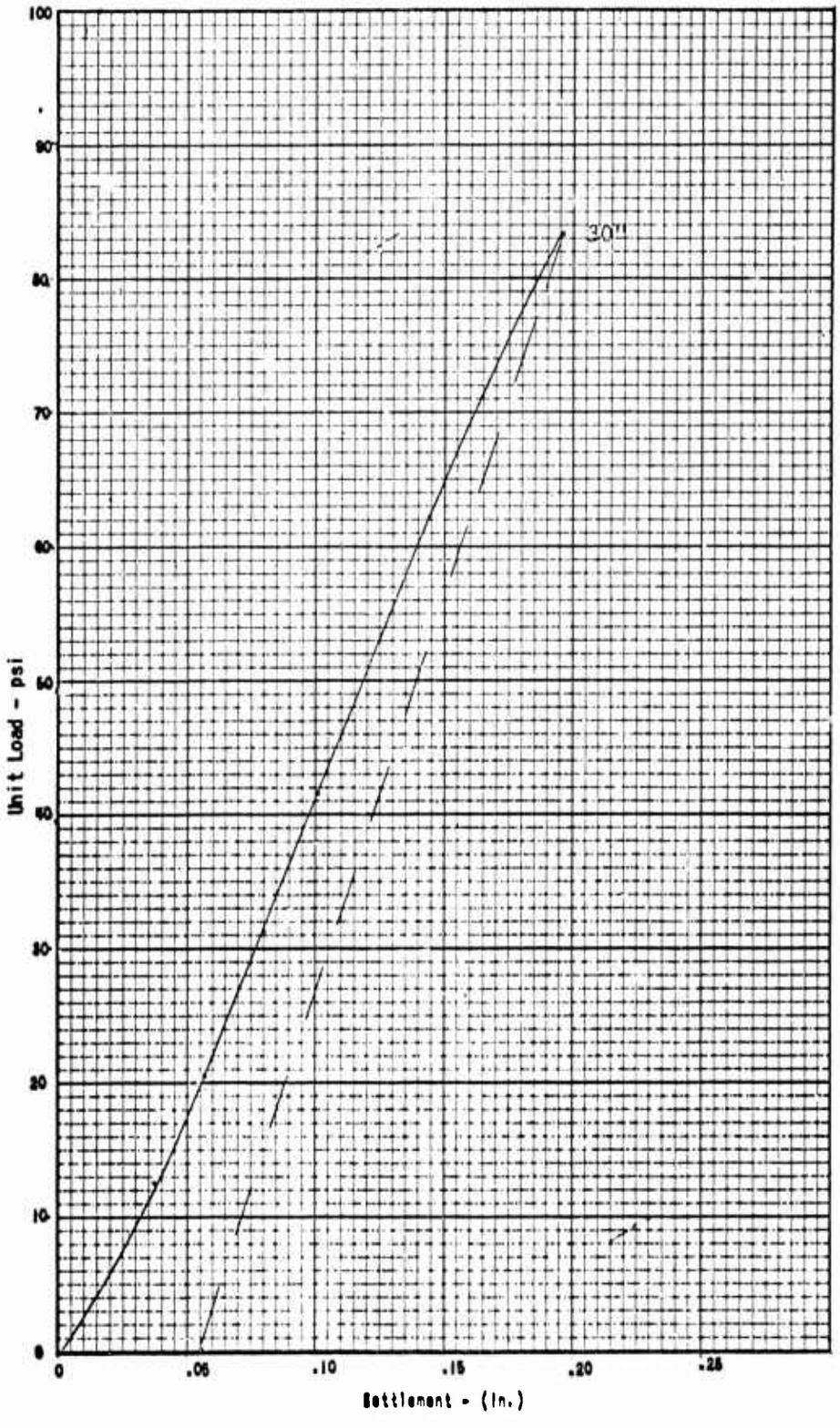
FACILITY	LOCATION	STATION
USNAF China Lake, California	Parking Apron 1	A



9-1/2" below top of portland cement concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Parking Apron 1	A

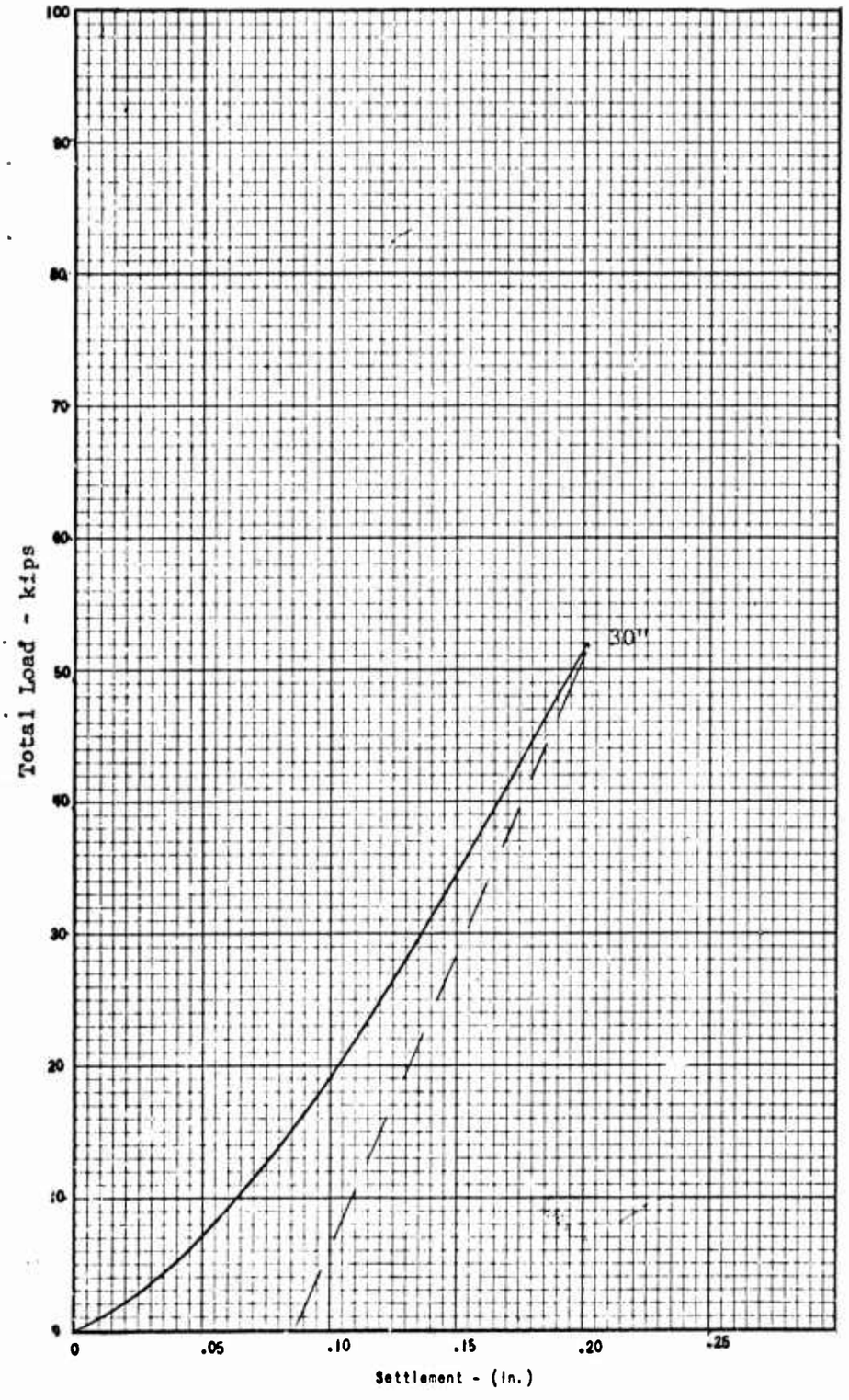


9-1/2" below top of portland cement concrete

K = 352 pci

11ND NCEL 3960/24 (8-64) TOTAL LOAD vs. DEFLECTION

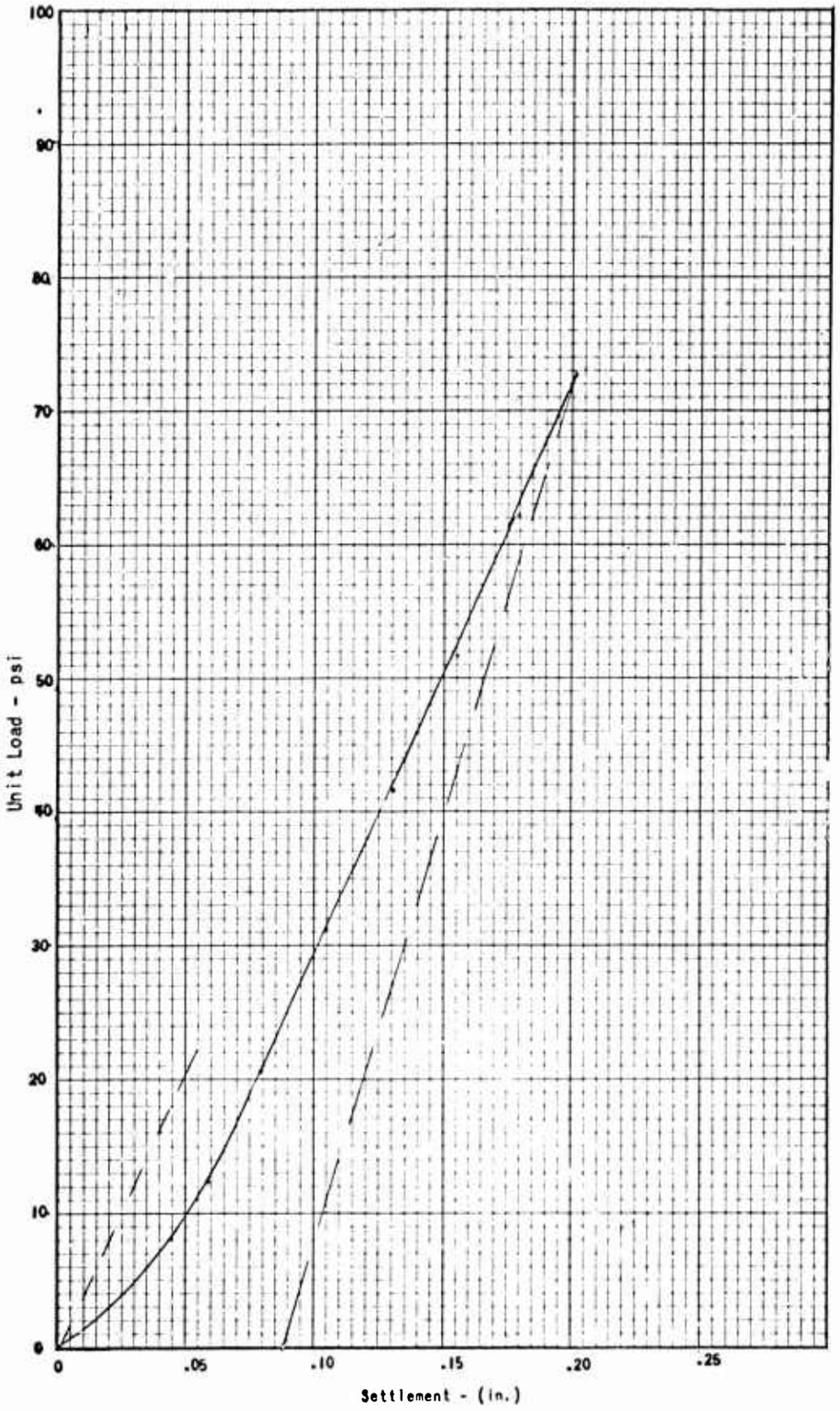
FACILITY	LOCATION	STATION
USNAF China Lake, California	Parking Apron 1	C



10" below top of portland cement concrete

11ND NCEL 3960/24 (8-64) UNIT LOAD vs. DEFLECTION

FACILITY	LOCATION	STATION
USNAF China Lake, California	Parking Apron 1	C



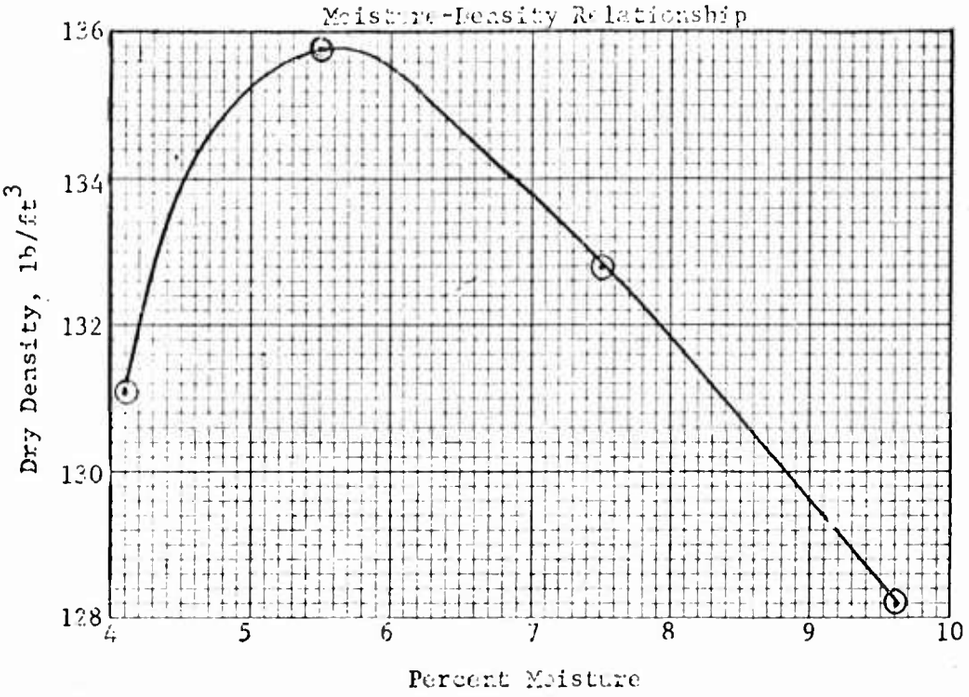
10" below top of portland cement concrete

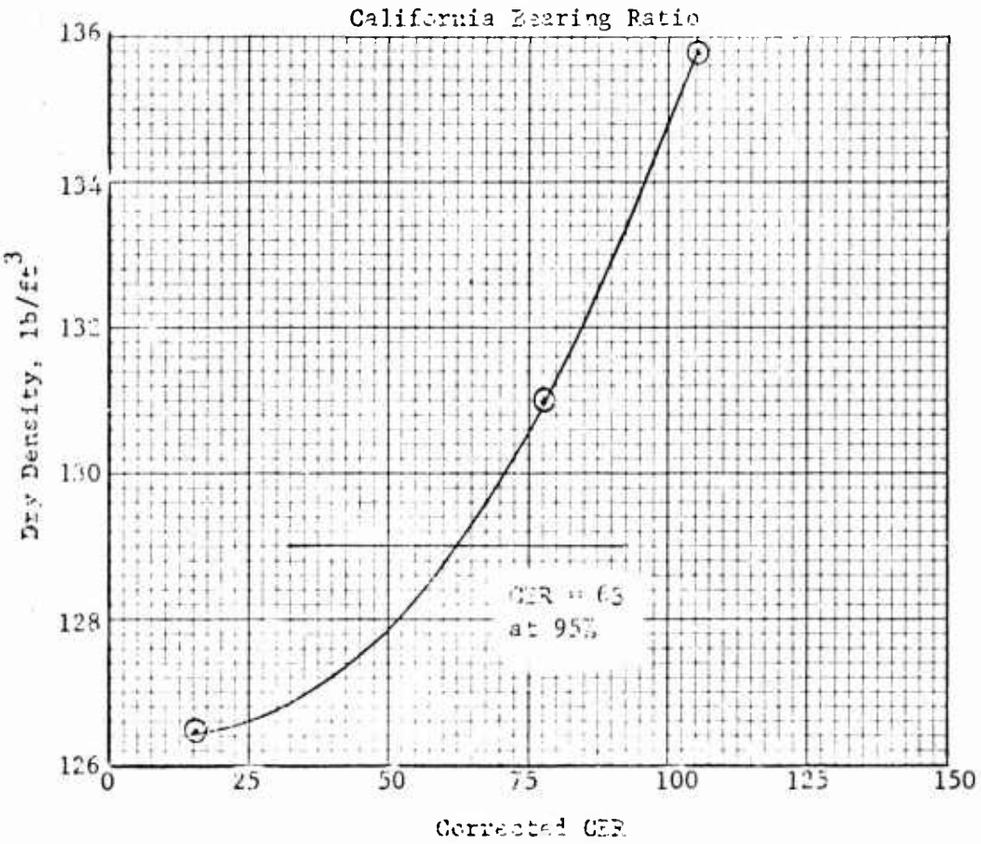
K = 404 psi

Appendix H

TYPICAL MOISTURE-DENSITY RELATIONSHIP
AND CALIFORNIA BEARING RATIO CURVES

FACILITY	LOCATION	STATION
USNAF China Lake, California	Taxiway 14-32	10+00, Base Course

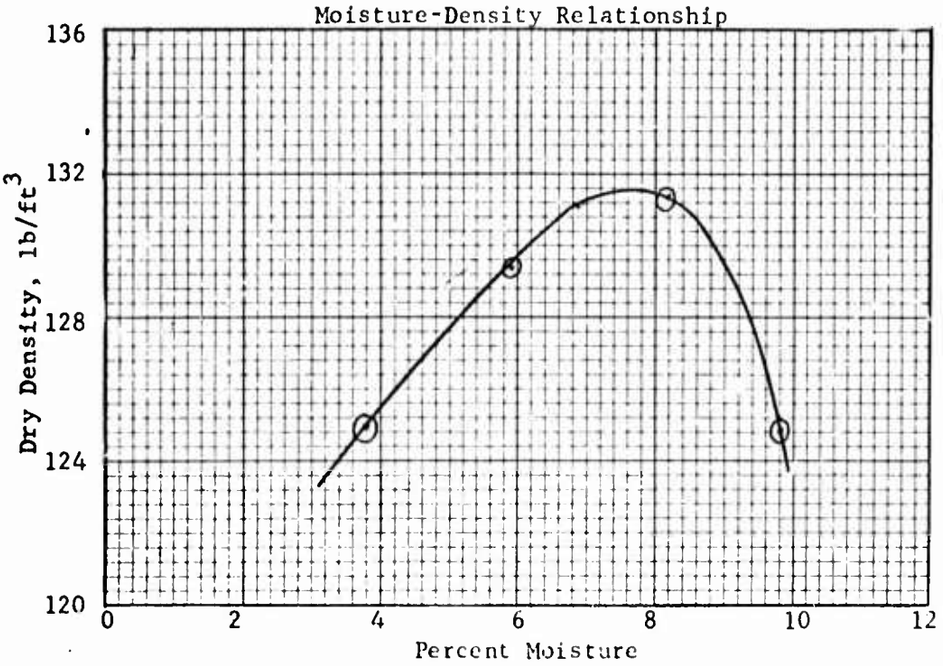




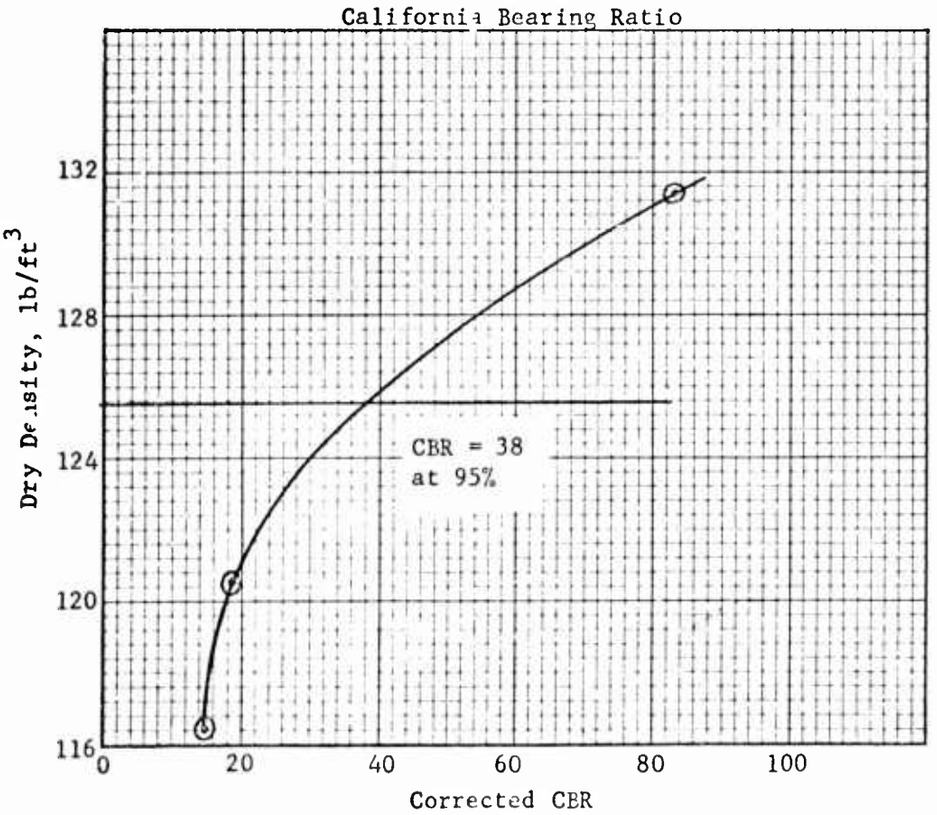
11ND NCEL 3960/24 (8-64)

FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 14-32	24+00, 14.5"-72" below surface

Moisture-Density Relationship

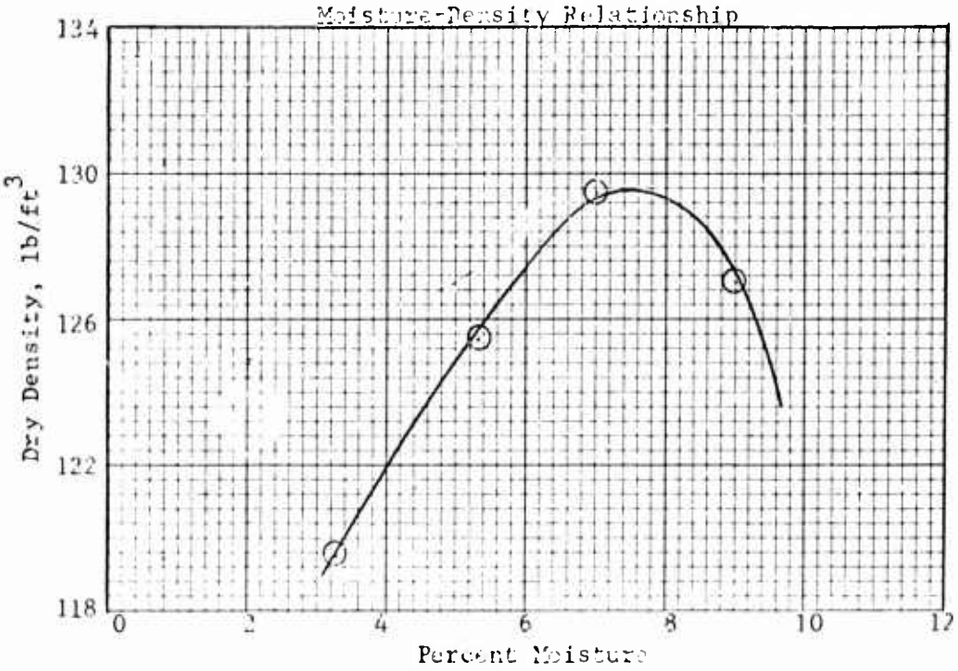


California Bearing Ratio

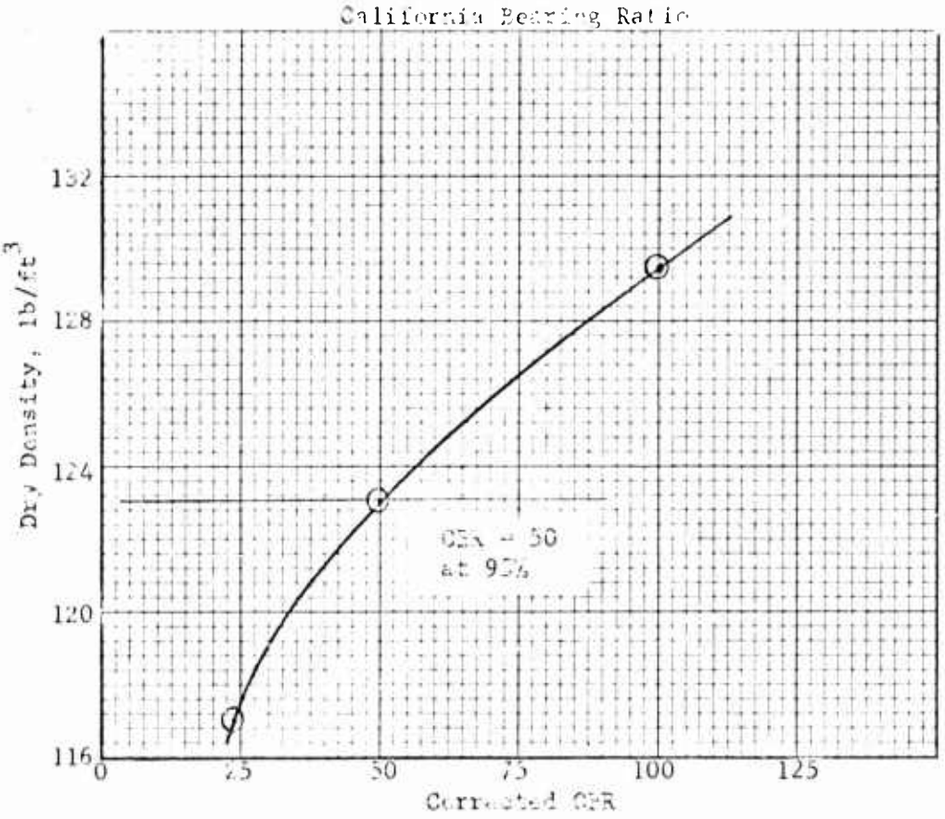


FACILITY	LOCATION	STATION
USNAF China Lake, California	Runway 07-25	26+00, 12"-39" below surface

Moisture-Density Relationship

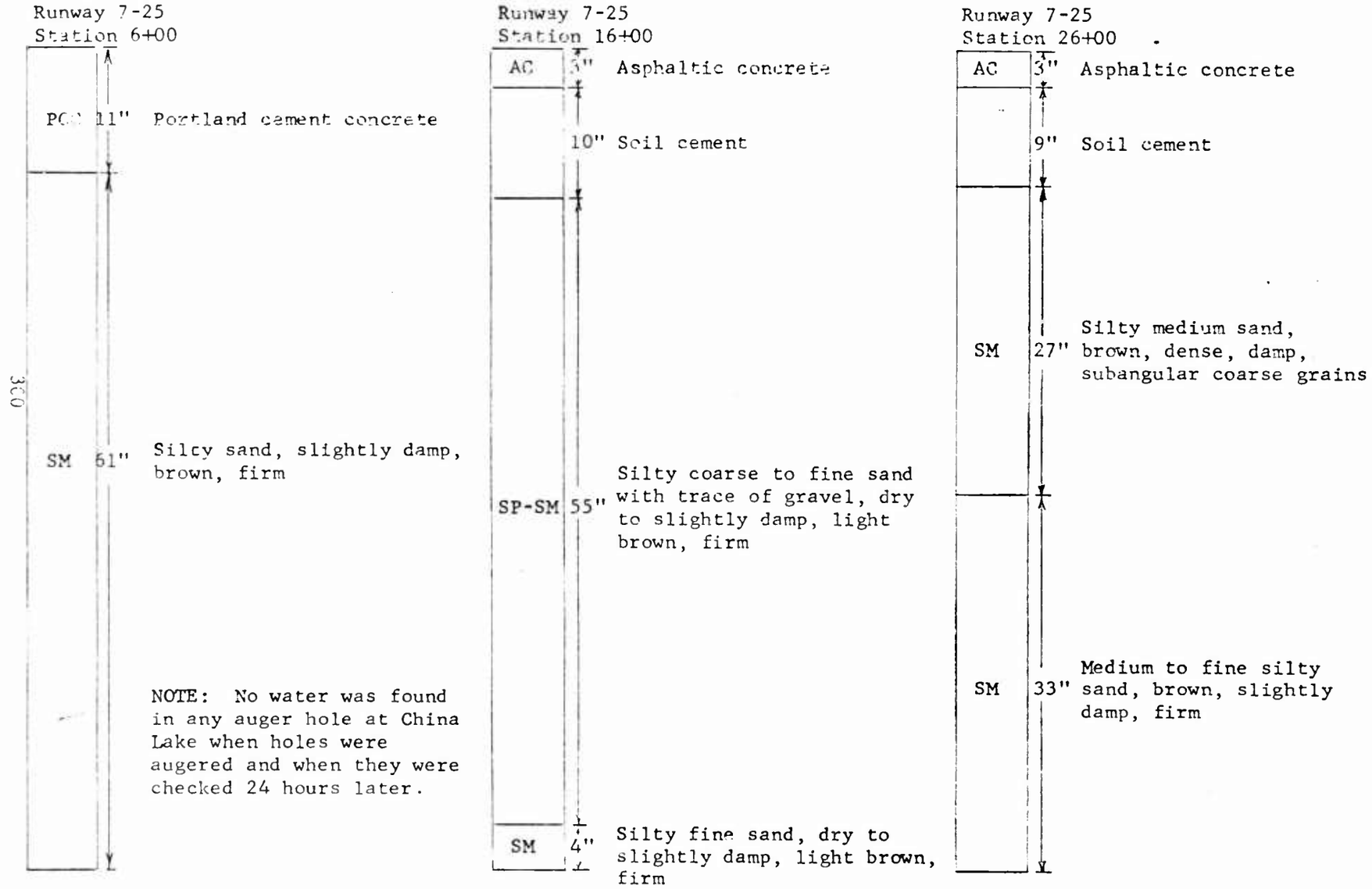


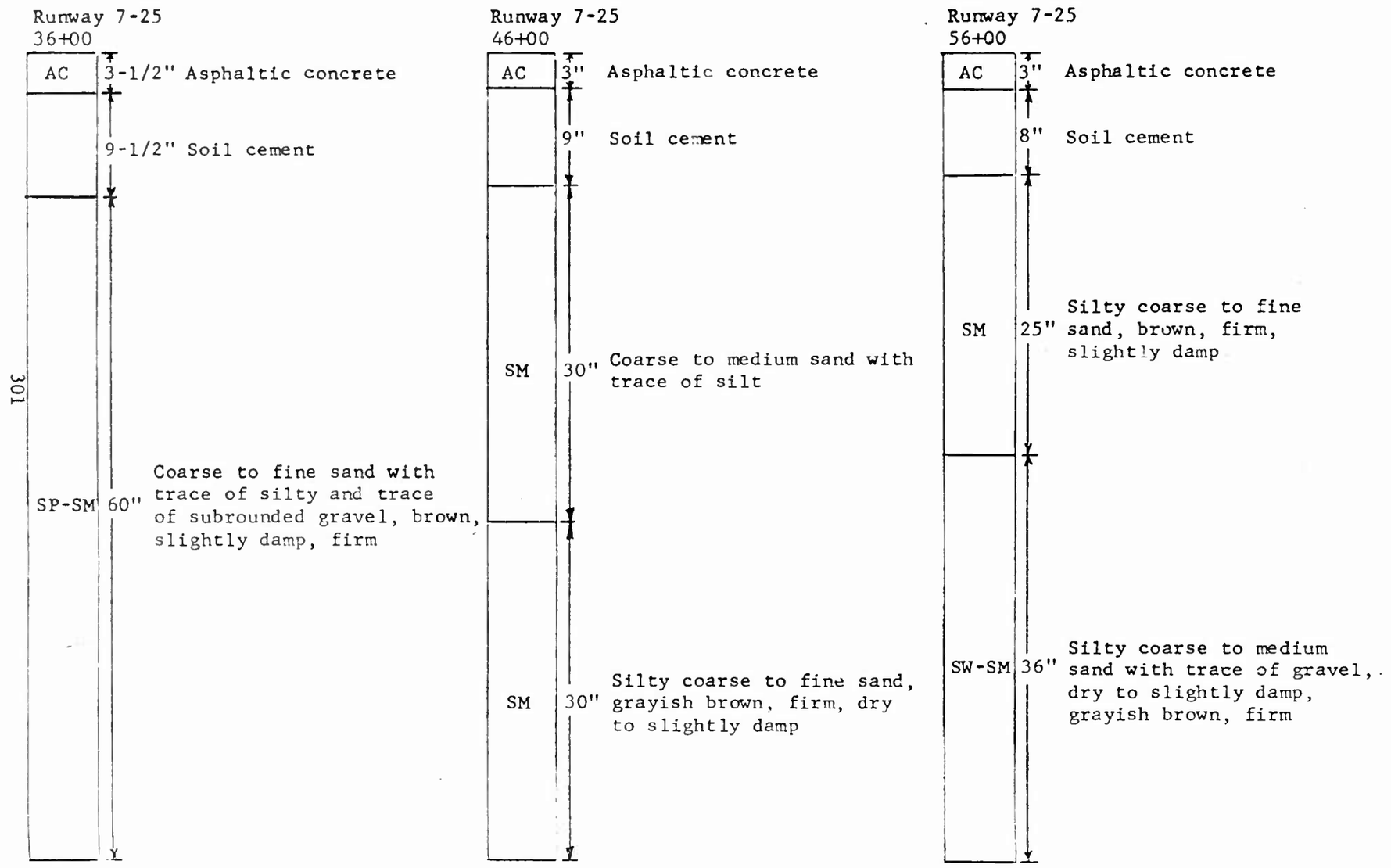
California Bearing Ratio

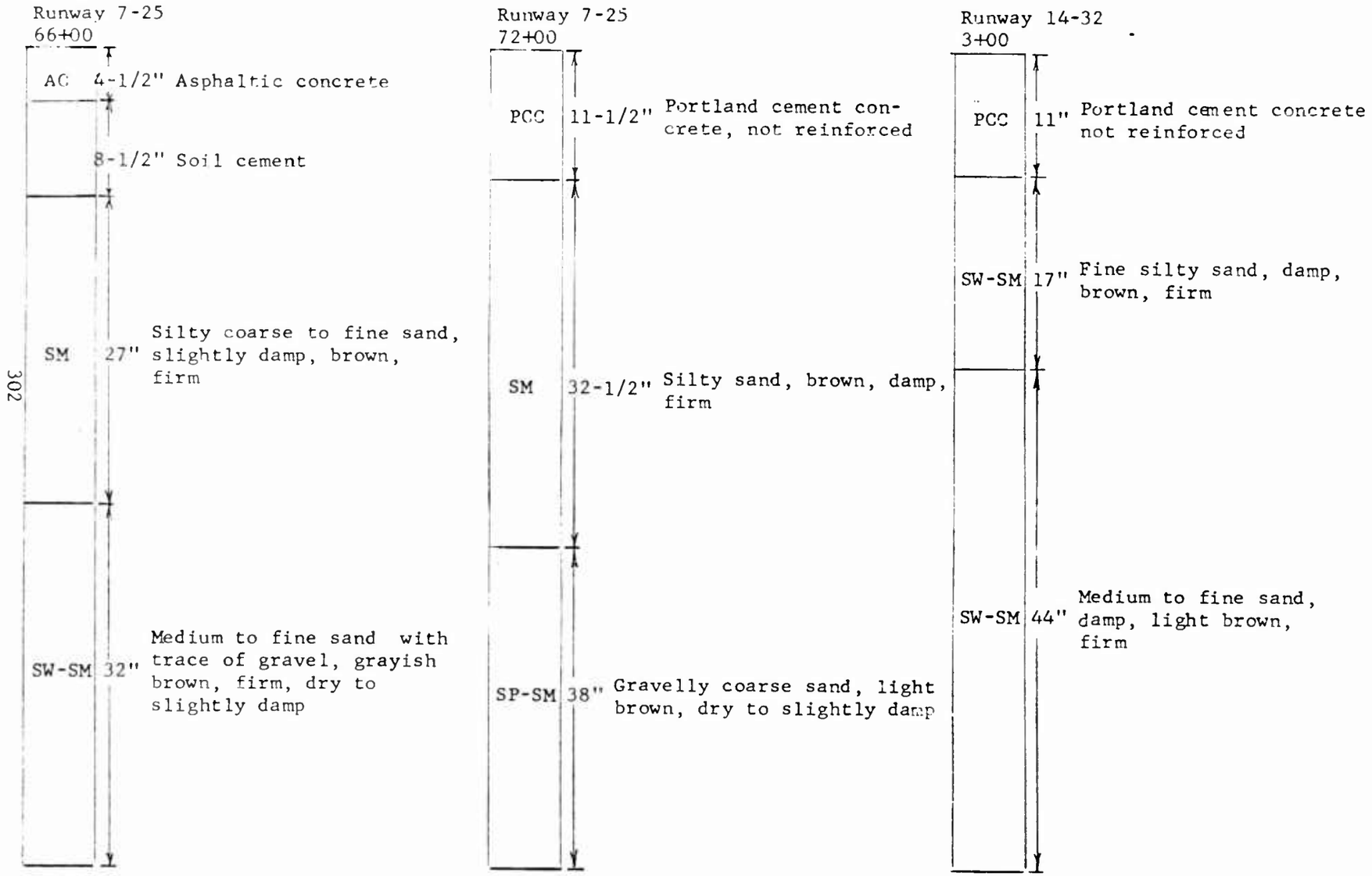


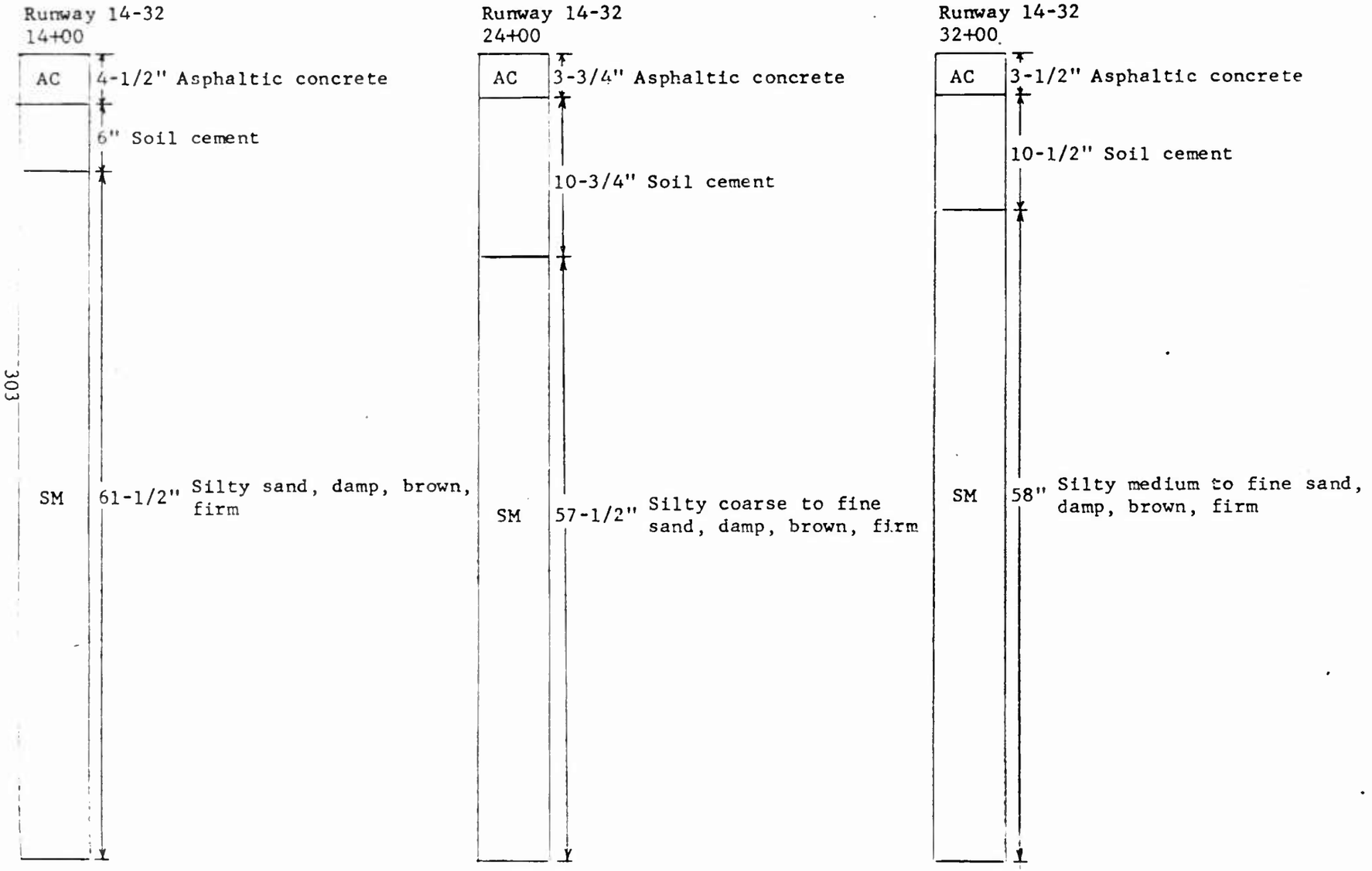
Appendix I

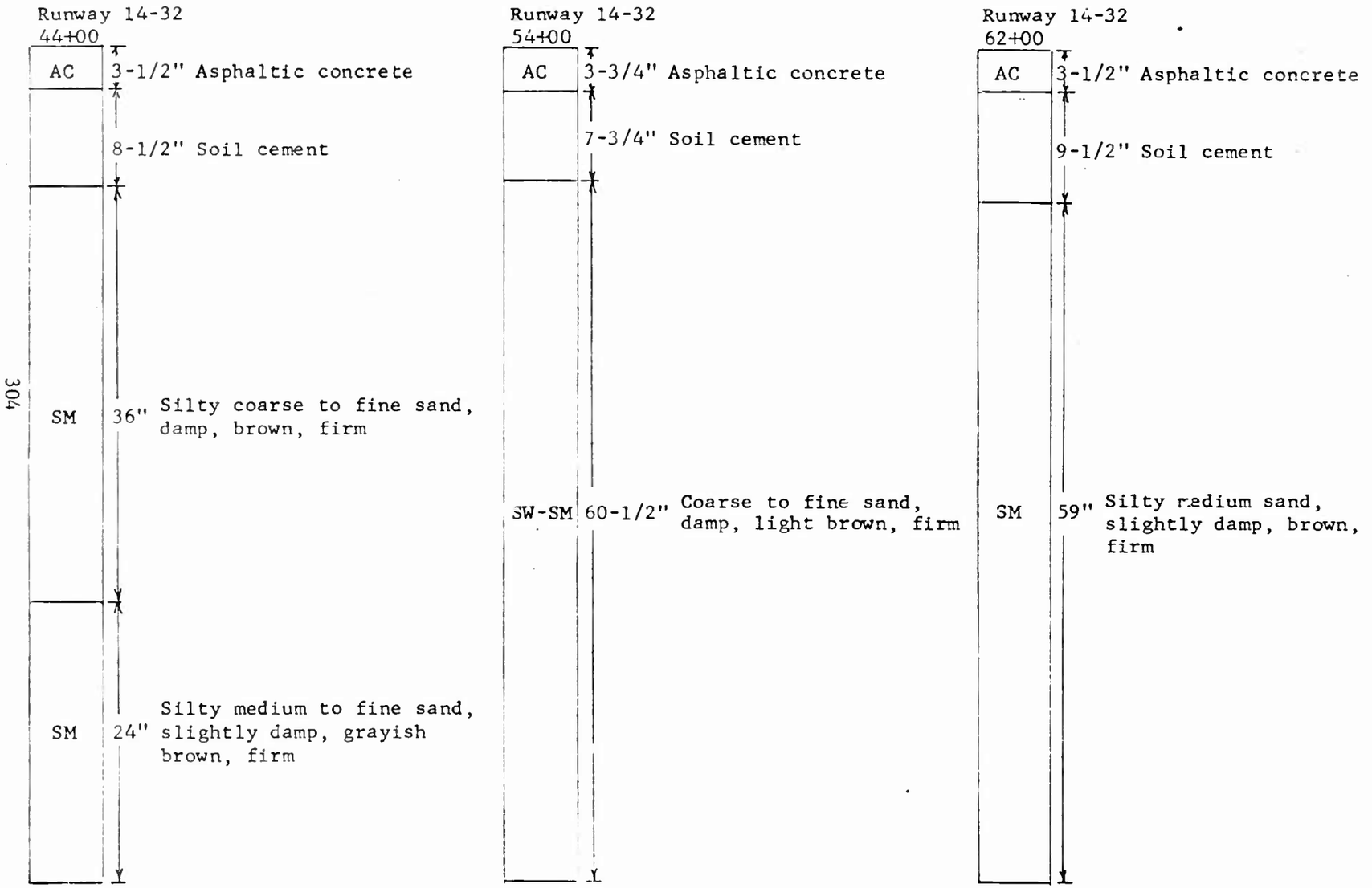
TEST PIT AND AUGER HOLE LOGS

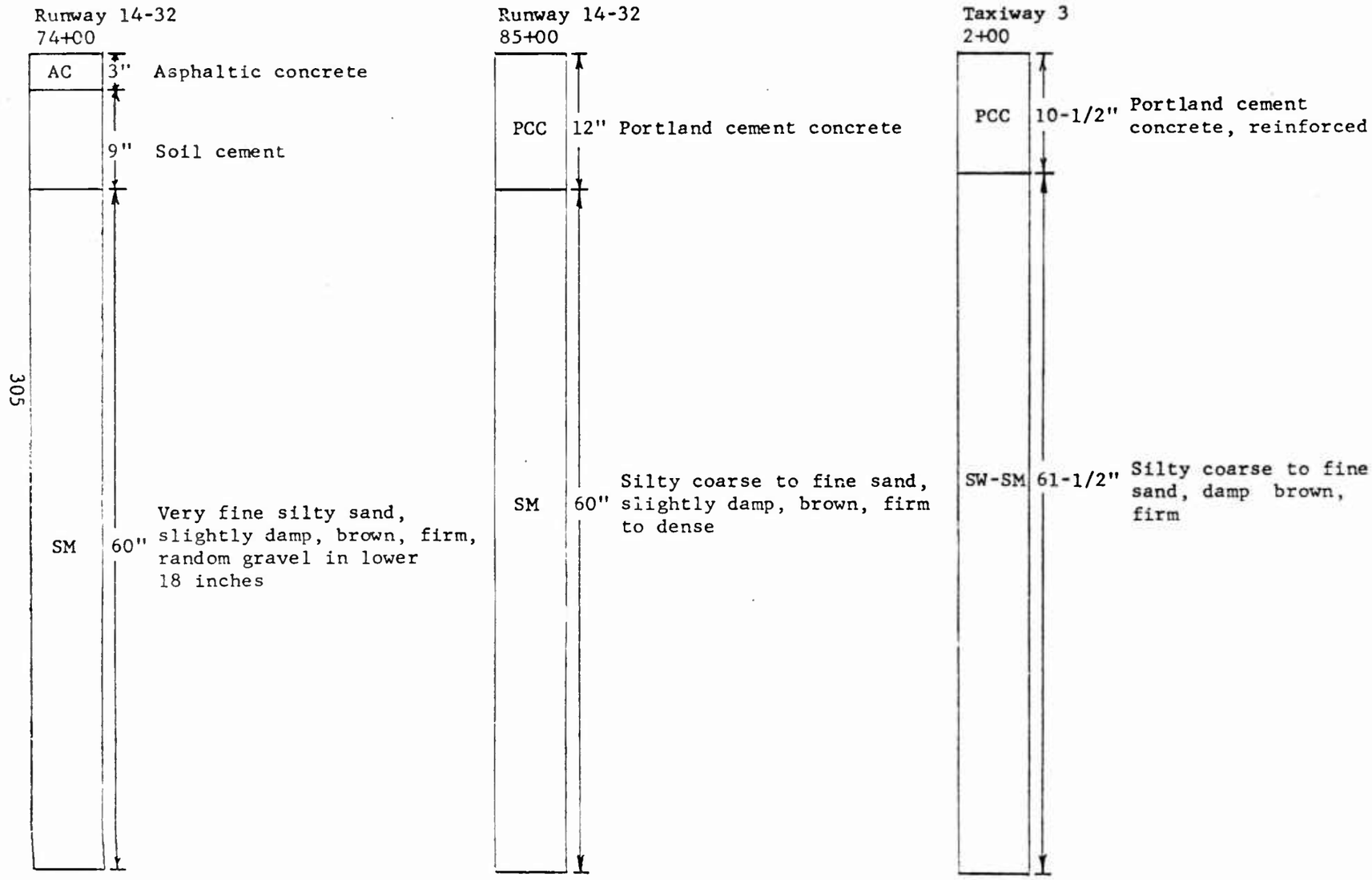

Runway 7-25
Station 6+00
PCC 11" Portland cement concrete
SM 61" Silty sand, slightly damp, brown, firm
NOTE: No water was found in any auger hole at China Lake when holes were augered and when they were checked 24 hours later.
Runway 7-25
Station 16+00
AC 3" Asphaltic concrete
10" Soil cement
SP-SM 55" Silty coarse to fine sand with trace of gravel, dry to slightly damp, light brown, firm
SM 4" Silty fine sand, dry to slightly damp, light brown, firm
Runway 7-25
Station 26+00
AC 3" Asphaltic concrete
9" Soil cement
SM 27" Silty medium sand, brown, dense, damp, subangular coarse grains
SM 33" Medium to fine silty sand, brown, slightly damp, firm

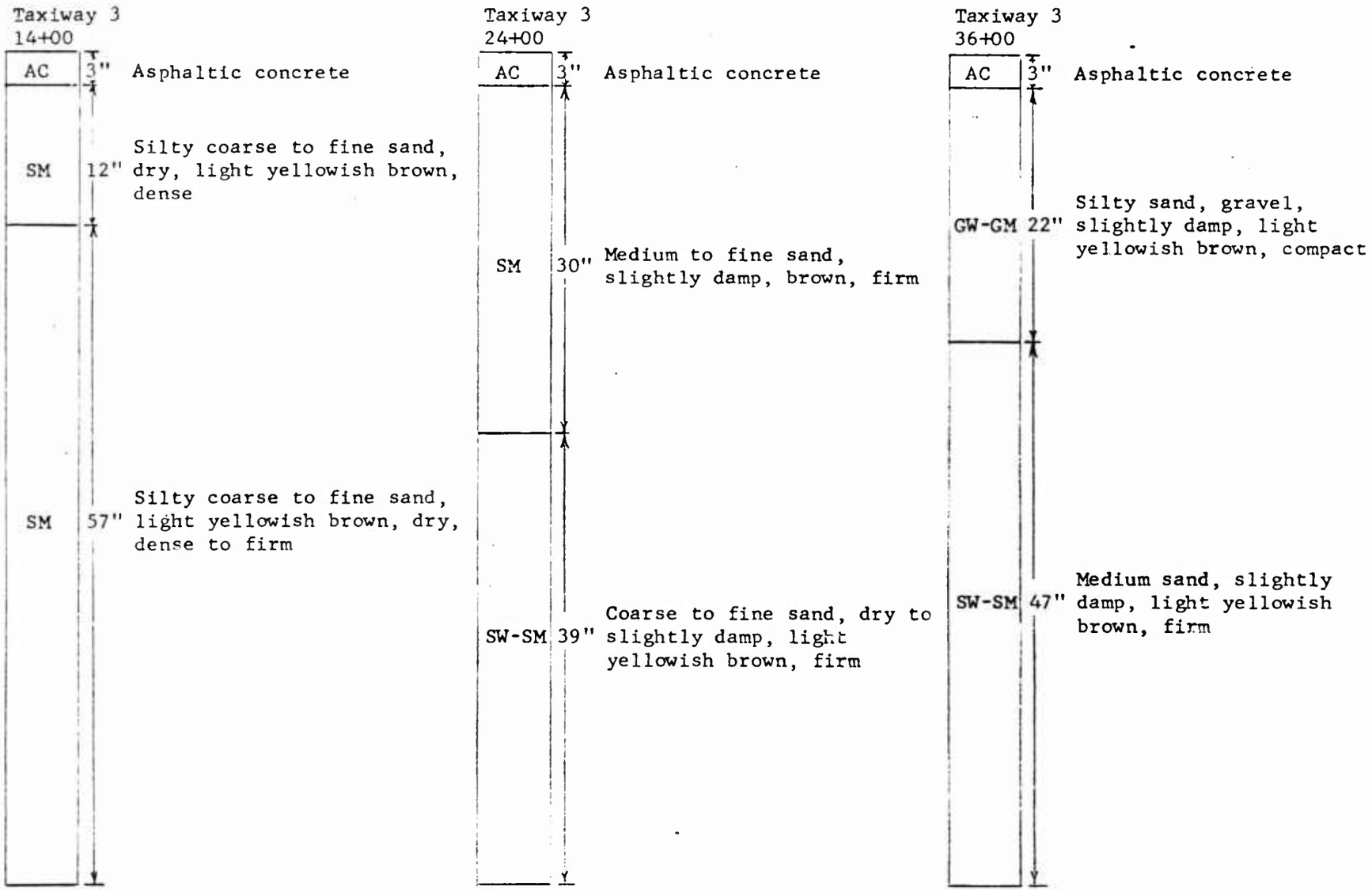

Runway 7-25
36+00
AC
3-1/2" Asphaltic concrete
9-1/2" Soil cement
SP-SM
60"
Coarse to fine sand with trace of silty and trace of subrounded gravel, brown, slightly damp, firm
301
Runway 7-25
46+00
AC
3" Asphaltic concrete
9" Soil cement
SM
30"
Coarse to medium sand with trace of silt
SM
30"
Silty coarse to fine sand, grayish brown, firm, dry to slightly damp
Runway 7-25
56+00
AC
3" Asphaltic concrete
8" Soil cement
SM
25"
Silty coarse to fine sand, brown, firm, slightly damp
SW-SM
36"
Silty coarse to medium sand with trace of gravel, dry to slightly damp, grayish brown, firm

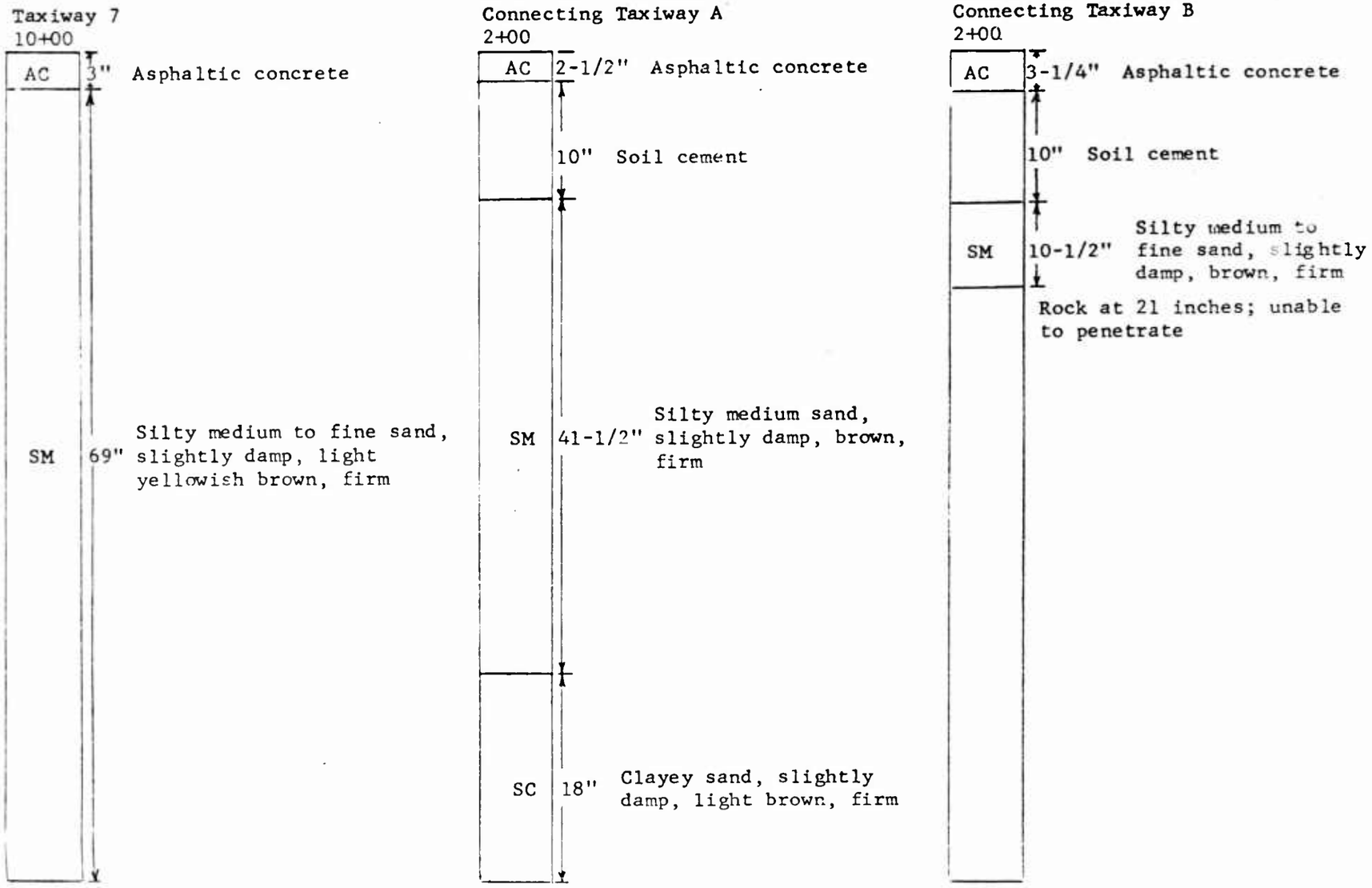

Runway 7-25
66+00
AC 4-1/2" Asphaltic concrete
8-1/2" Soil cement
SM 27" Silty coarse to fine sand, slightly damp, brown, firm
SW-SM 32" Medium to fine sand with trace of gravel, grayish brown, firm, dry to slightly damp
302
Runway 7-25
72+00
PCC 11-1/2" Portland cement concrete, not reinforced
SM 32-1/2" Silty sand, brown, damp, firm
SP-SM 38" Gravelly coarse sand, light brown, dry to slightly damp
Runway 14-32
3+00
PCC 11" Portland cement concrete not reinforced
SW-SM 17" Fine silty sand, damp, brown, firm
SW-SM 44" Medium to fine sand, damp, light brown, firm

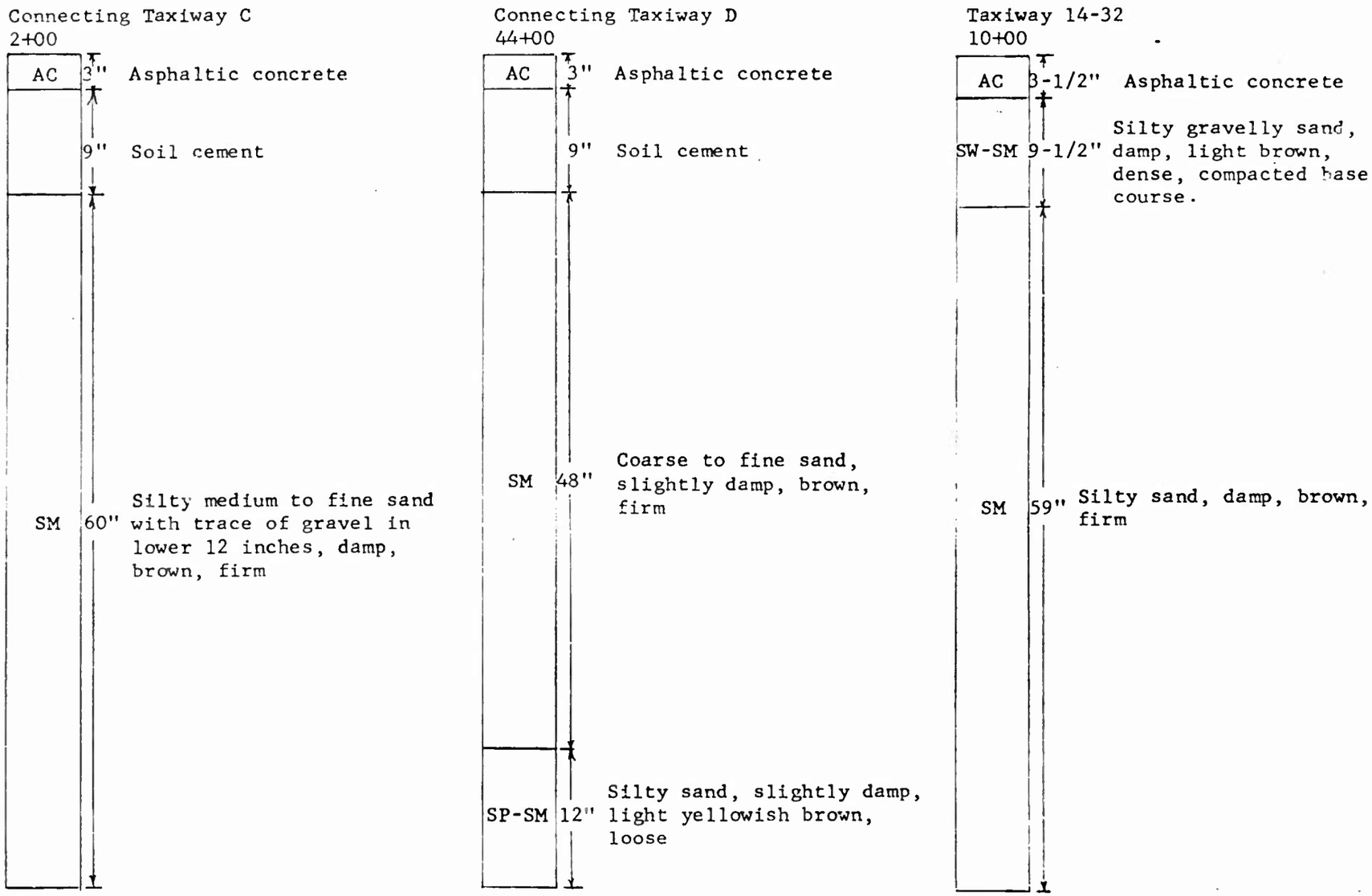

Runway 14-32
14+00
AC
4-1/2" Asphaltic concrete
6" Soil cement
SM
61-1/2" Silty sand, damp, brown, firm
Runway 14-32
24+00
AC
3-3/4" Asphaltic concrete
10-3/4" Soil cement
SM
57-1/2" Silty coarse to fine sand, damp, brown, firm
Runway 14-32
32+00
AC
3-1/2" Asphaltic concrete
10-1/2" Soil cement
SM
58" Silty medium to fine sand, damp, brown, firm


Runway 14-32
44+00
AC
3-1/2" Asphaltic concrete
8-1/2" Soil cement
SM
36"
Silty coarse to fine sand, damp, brown, firm
SM
24"
Silty medium to fine sand, slightly damp, grayish brown, firm
Runway 14-32
54+00
AC
3-3/4" Asphaltic concrete
7-3/4" Soil cement
SW-SM
60-1/2"
Coarse to fine sand, damp, light brown, firm
Runway 14-32
62+00
AC
3-1/2" Asphaltic concrete
9-1/2" Soil cement
SM
59"
Silty medium sand, slightly damp, brown, firm


Runway 14-32
74+00
AC
3"
Asphaltic concrete
9"
Soil cement
305
SM
60"
Very fine silty sand, slightly damp, brown, firm, random gravel in lower 18 inches
Runway 14-32
85+00
PCC
12"
Portland cement concrete
SM
60"
Silty coarse to fine sand, slightly damp, brown, firm to dense
Taxiway 3
2+00
PCC
10-1/2"
Portland cement concrete, reinforced
SW-SM
61-1/2"
Silty coarse to fine sand, damp brown, firm


Taxiway 3
14+00
AC
3"
Asphaltic concrete
SM
12"
Silty coarse to fine sand, dry, light yellowish brown, dense
SM
57"
Silty coarse to fine sand, light yellowish brown, dry, dense to firm
Taxiway 3
24+00
AC
3"
Asphaltic concrete
SM
30"
Medium to fine sand, slightly damp, brown, firm
SW-SM
39"
Coarse to fine sand, dry to slightly damp, light yellowish brown, firm
Taxiway 3
36+00
AC
3"
Asphaltic concrete
GW-GM
22"
Silty sand, gravel, slightly damp, light yellowish brown, compact
SW-SM
47"
Medium sand, slightly damp, light yellowish brown, firm


Taxiway 7
10+00
AC
3"
Asphaltic concrete
SM
69"
Silty medium to fine sand, slightly damp, light yellowish brown, firm
Connecting Taxiway A
2+00
AC
2-1/2"
Asphaltic concrete
10"
Soil cement
SM
41-1/2"
Silty medium sand, slightly damp, brown, firm
SC
18"
Clayey sand, slightly damp, light brown, firm
Connecting Taxiway B
2+00
AC
3-1/4"
Asphaltic concrete
10"
Soil cement
SM
10-1/2"
Silty medium to fine sand, slightly damp, brown, firm
Rock at 21 inches; unable to penetrate


Connecting Taxiway C
2+00
AC
3"
Asphaltic concrete
9"
Soil cement
SM
60"
Silty medium to fine sand with trace of gravel in lower 12 inches, damp, brown, firm
Connecting Taxiway D
44+00
AC
3"
Asphaltic concrete
9"
Soil cement
SM
48"
Coarse to fine sand, slightly damp, brown, firm
SP-SM
12"
Silty sand, slightly damp, light yellowish brown, loose
Taxiway 14-32
10+00
AC
3-1/2"
Asphaltic concrete
SW-SM
9-1/2"
Silty gravelly sand, damp, light brown, dense, compacted base course.
SM
59"
Silty sand, damp, brown, firm

Taxiway 14-32
20+00

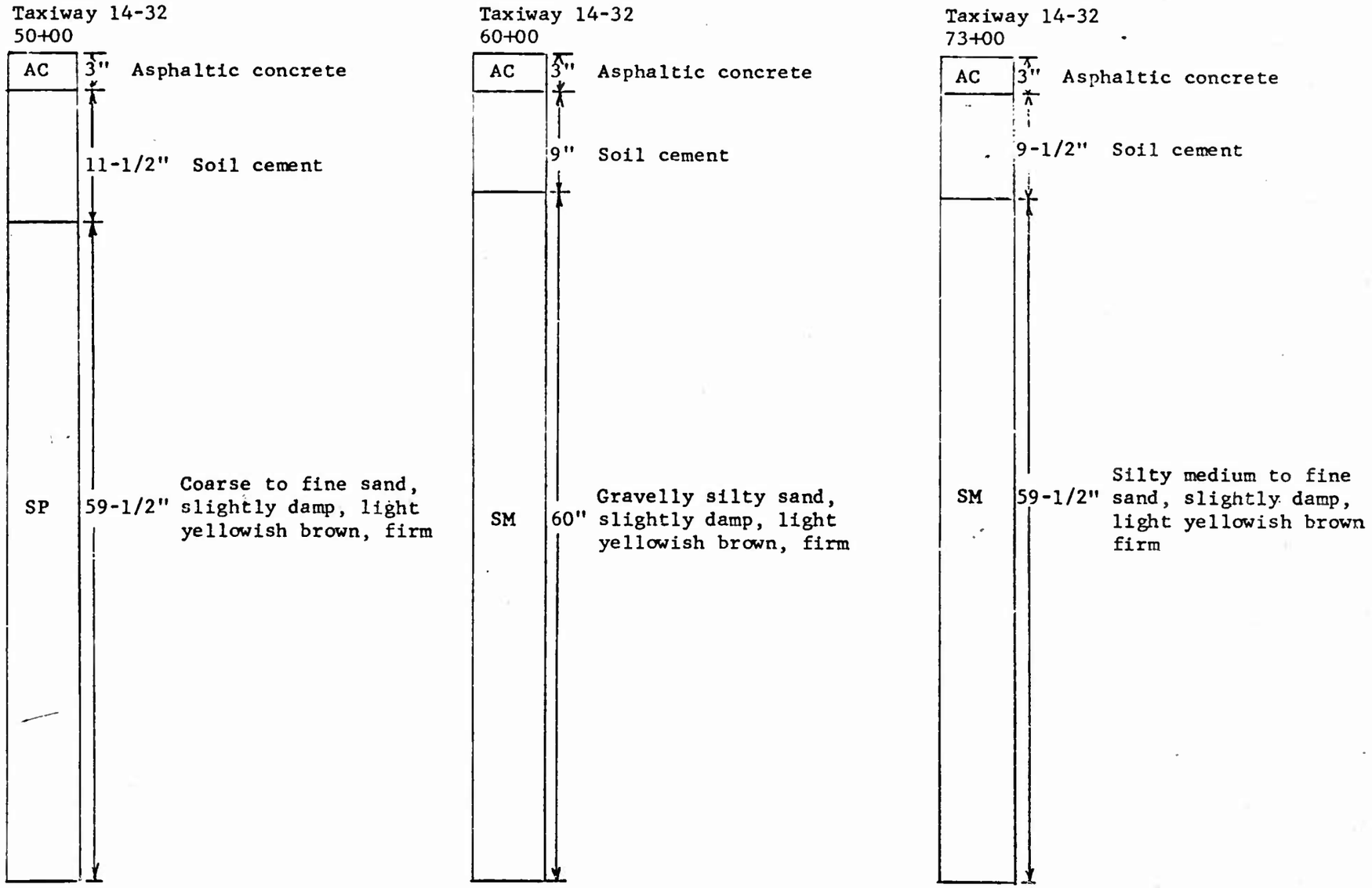
AC	3"	Asphaltic concrete
	10"	Soil cement
SM	59"	Silty medium sand, damp, brown, firm, occasional cobbles up to 6 inches between minus 13 inches and minus 33 inches

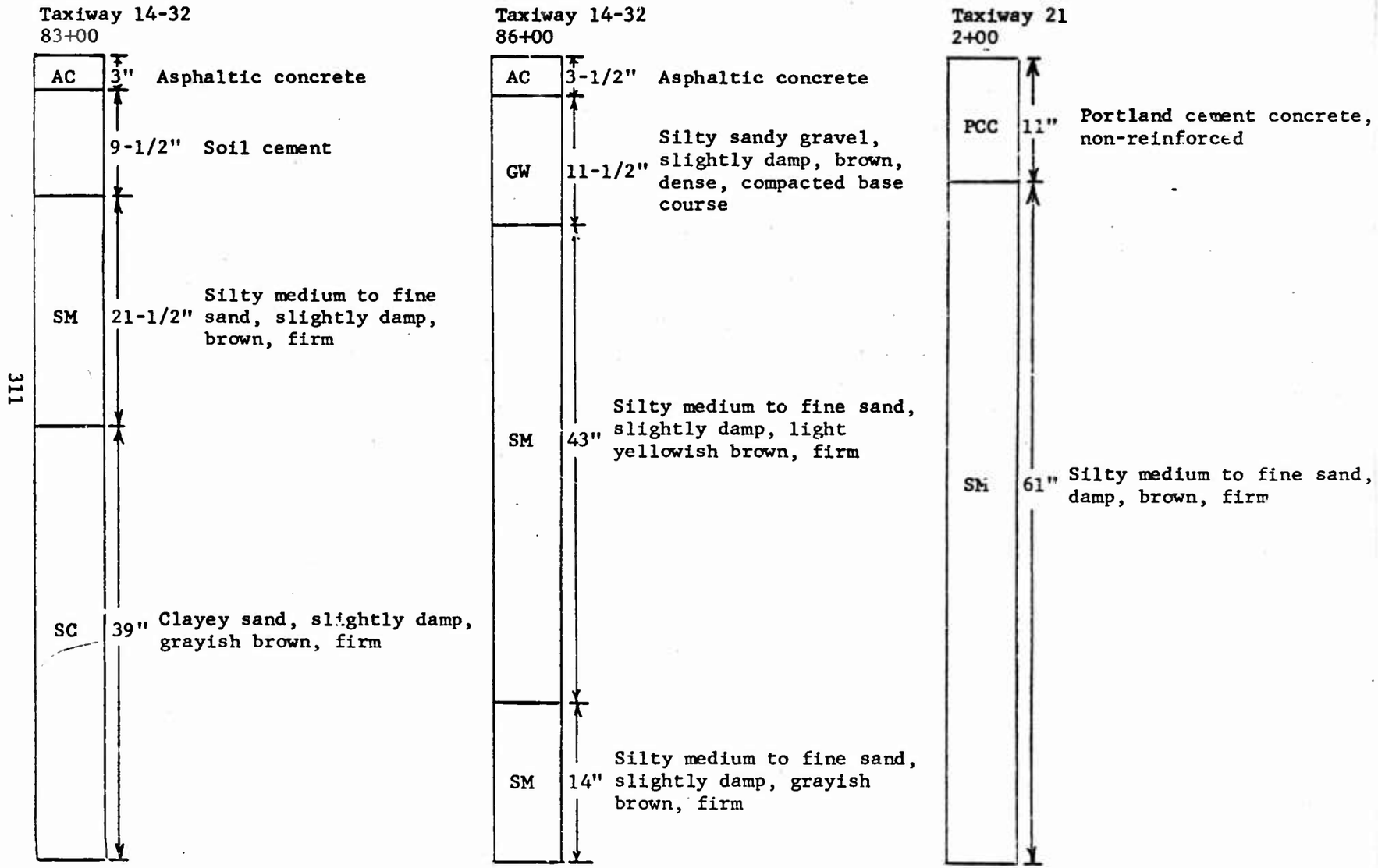
Taxiway 14-32
30+00

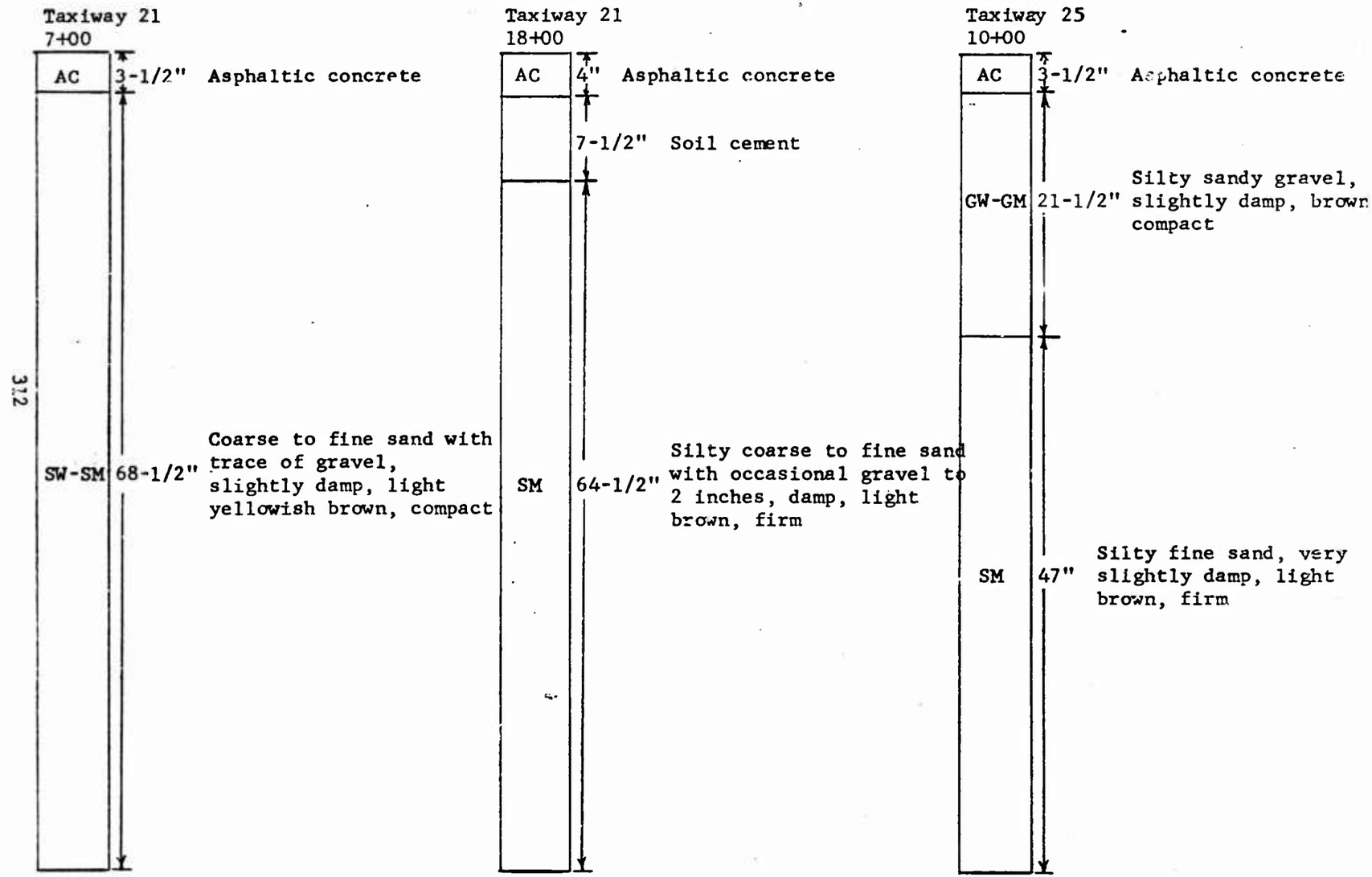
AC	2-3/4"	Asphaltic concrete
	11-1/4"	Soil cement
SM	28"	Silty sand, damp, brown, firm
SP	30"	Coarse to fine sand, slightly damp, light yellowish brown, firm

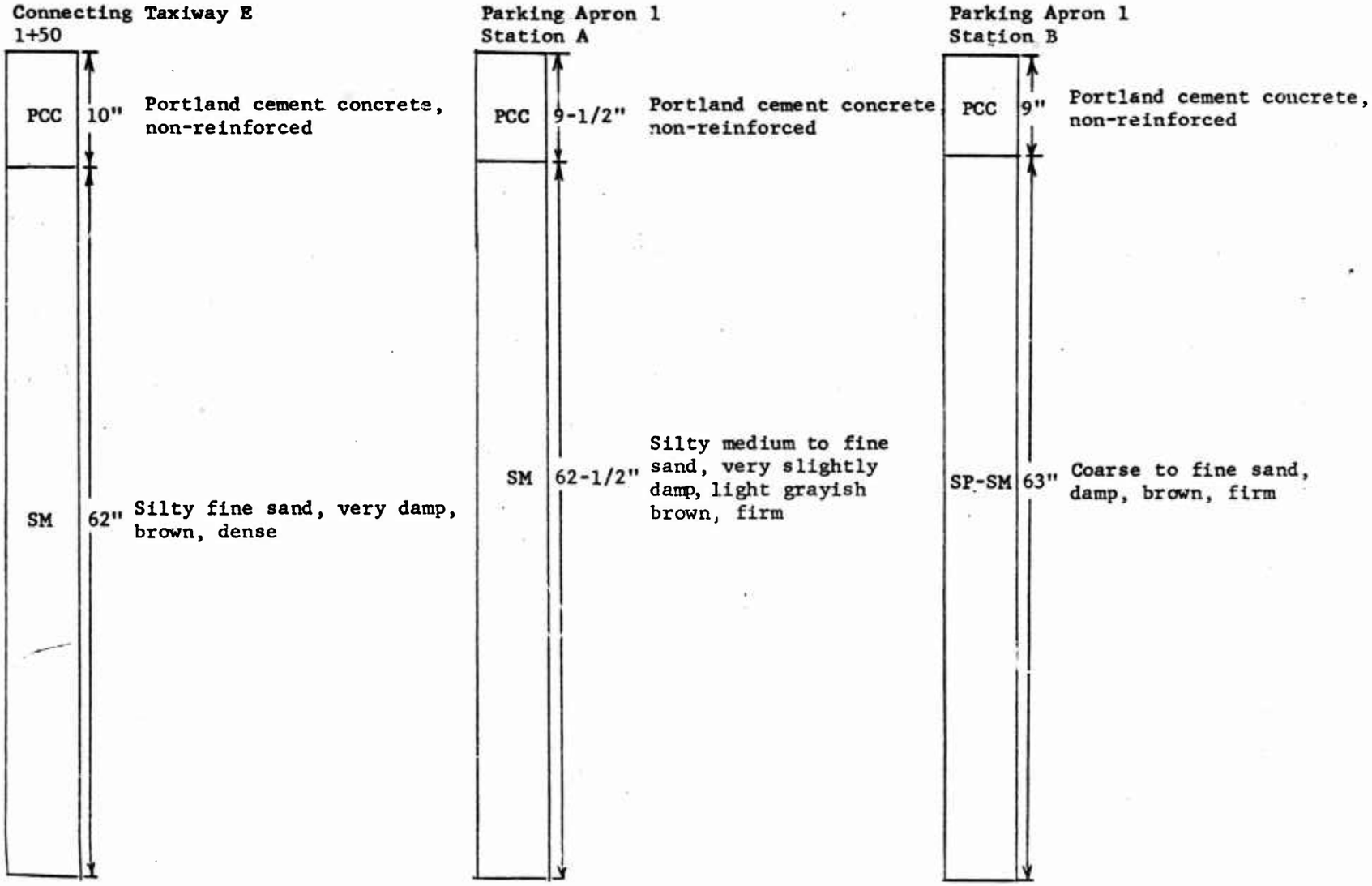
Taxiway 14-32
40+00

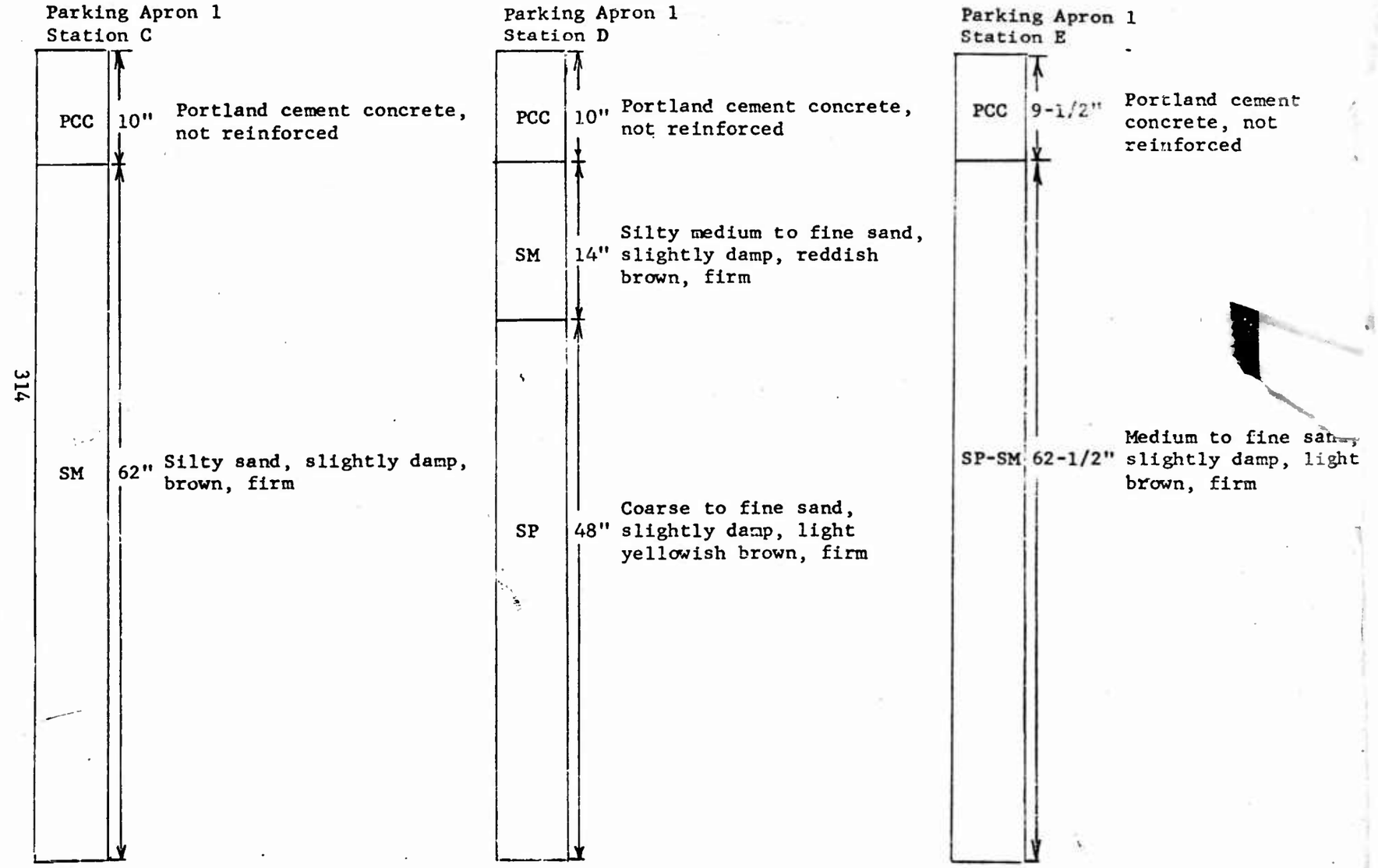
AC	3-1/4"	Asphaltic concrete
	11-1/4"	Soil cement
SM	39"	Silty sand, damp, brown, firm
SW-SM	18"	Coarse to fine sand, slightly damp, light yellowish brown, firm


Taxiway 14-32
50+00
AC
3"
Asphaltic concrete
11-1/2"
Soil cement
SP
59-1/2"
Coarse to fine sand, slightly damp, light yellowish brown, firm
Taxiway 14-32
60+00
AC
3"
Asphaltic concrete
9"
Soil cement
SM
60"
Gravelly silty sand, slightly damp, light yellowish brown, firm
Taxiway 14-32
73+00
AC
3"
Asphaltic concrete
9-1/2"
Soil cement
SM
59-1/2"
Silty medium to fine sand, slightly damp, light yellowish brown firm


Taxiway 14-32
83+00
AC
3"
Asphaltic concrete
9-1/2"
Soil cement
SM
21-1/2"
Silty medium to fine sand, slightly damp, brown, firm
SC
39"
Clayey sand, slightly damp, grayish brown, firm
Taxiway 14-32
86+00
AC
3-1/2"
Asphaltic concrete
GW
11-1/2"
Silty sandy gravel, slightly damp, brown, dense, compacted base course
SM
43"
Silty medium to fine sand, slightly damp, light yellowish brown, firm
SM
14"
Silty medium to fine sand, slightly damp, grayish brown, firm
Taxiway 21
2+00
PCC
11"
Portland cement concrete, non-reinforced
SM
61"
Silty medium to fine sand, damp, brown, firm


Taxiway 21
7+00
AC
3-1/2"
Asphaltic concrete
SW-SM
68-1/2"
Coarse to fine sand with trace of gravel, slightly damp, light yellowish brown, compact
Taxiway 21
18+00
AC
4"
Asphaltic concrete
7-1/2"
Soil cement
SM
64-1/2"
Silty coarse to fine sand with occasional gravel to 2 inches, damp, light brown, firm
Taxiway 25
10+00
AC
3-1/2"
Asphaltic concrete
GW-GM
21-1/2"
Silty sandy gravel, slightly damp, brown compact
SM
47"
Silty fine sand, very slightly damp, light brown, firm


Connecting Taxiway E
1+50
PCC
10"
Portland cement concrete, non-reinforced
SM
62"
Silty fine sand, very damp, brown, dense
Parking Apron 1
Station A
PCC
9-1/2"
Portland cement concrete, non-reinforced
SM
62-1/2"
Silty medium to fine sand, very slightly damp, light grayish brown, firm
Parking Apron 1
Station B
PCC
9"
Portland cement concrete, non-reinforced
SP-SM
63"
Coarse to fine sand, damp, brown, firm


Parking Apron 1
Station C
PCC
10"
Portland cement concrete, not reinforced
SM
62"
Silty sand, slightly damp, brown, firm
314
Parking Apron 1
Station D
PCC
10"
Portland cement concrete, not reinforced
SM
14"
Silty medium to fine sand, slightly damp, reddish brown, firm
SP
48"
Coarse to fine sand, slightly damp, light yellowish brown, firm
Parking Apron 1
Station E
PCC
9-1/2"
Portland cement concrete, not reinforced
SP-SM
62-1/2"
Medium to fine sand, slightly damp, light brown, firm